# Traffic and Toll Revenue Study

## West Virginia Turnpike


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Prepared for:

West Virginia Parkways, Economic Development and Tourism Authority

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## INTRODUCTION AND SUMMARY

The purposes of this study were to analyze recent transaction and revenue trends on the West Virginia Turnpike (Turnpike) and to develop traffic and revenue forecasts for the Turnpike under current toll rates and schedules, as well as under various increased levels of passenger car and commercial vehicle toll rates. The study developed and analyzed a number of toll increase scenarios (for example, a Base Case of no increase, 20 percent increase, 40 percent increase, 60 percent increase and 80 percent increase) using different levels of discounts. Several of the toll increase scenarios examined the impact on traffic and revenue of instituting a discount for West Virginia E-ZPass patrons at different levels (for example, 0 percent, 10 percent, 15 percent and 25 percent WV E-ZPass discount levels) while continuing the West Virginia Parkway, Economic Development and Tourism Authority's (Authority's) existing commuter discount for passenger (Class 1) vehicles under its Parkways Authority Commuter Card (PACC) program. Under the Authority's enabling legislation, any proposed toll increase must be accompanied by a discount program for all classes of vehicles that establish an E-ZPass account with the Authority (this requirement does not apply to E-ZPass subscribers whose accounts are based in other states). Because the Authority intends to continue its PACC commuter discount program, under all toll and discount scenarios studied, the PACC commuter discount program was assumed to continue under the current rate structure with no increases.

Financial analysis of the different toll and discount scenarios also was undertaken in order to determine the smallest toll increase in combination with the largest toll discount for West Virginia E-ZPass customers that is estimated to produce enough annual revenue to meet the total needs of the Authority with respect to the Turnpike.

In regard to those needs, the Authority's Consulting Engineer, HNTB provided estimates of yearly operating expenses, renewal and replacement requirements (R&R), and essential deferred maintenance and capital needs. These revenue needs, along with the annual debt service requirements from the Official Statement dated June 25, 2008 provided by the Authority, were used to assess how the projected annual revenue stream of each toll/discount scenario would perform against the total needs of the Authority. A summary of the needs is shown in Table ES-1.

**Table ES-1**
**Summary of Estimated Debt Service, Operating Expenses, Renewal and Replacement Requirements, and Essential Deferred Maintenance and Capital Needs**
**West Virginia Parkways, Economic Development and Tourism Authority**

**(Thousands)**

| | | | Base Case (No Toll Increase) | | Toll Increase Scenarios | |
|---|---|---|---|---|---|---|
| **Fiscal Year** | **Operating Expense (1)** | **Total Debt Service (2)** | Renewal and Replacement (R&R) Requirement (1) | Essential Deferred Maintenance and Capital Needs (1) (3) | Renewal and Replacement (R&R) Requirement (1) | Essential Deferred Maintenance and Capital Needs (1) |
| 2010 | $33,003 | $10,389 | $11,743 | - | $8,743 | $20,010 |
| 2011 | 33,885 | 10,720 | 13,796 | - | 8,040 | 21,960 |
| 2012 | 34,797 | 10,401 | 15,994 | - | 7,837 | 24,036 |
| 2013 | 35,740 | 10,808 | 19,775 | - | 7,859 | 24,523 |
| 2014 | 36,666 | 10,458 | 23,714 | - | 8,482 | 24,817 |
| 2015 | 37,726 | 10,717 | 27,225 | - | 9,156 | 24,562 |
| 2016 | 38,720 | 10,769 | 31,874 | - | 9,151 | 25,544 |
| 2017 | 39,851 | 10,677 | 35,670 | - | 9,133 | 26,566 |
| 2018 | 40,971 | 10,719 | 39,618 | - | 9,099 | 27,924 |
| 2019 | 42,129 | 10,739 | 43,724 | - | 9,052 | 28,439 |

(1) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(2) Debt Service from Official Statement dated June 25, 2008.
(3) Because there would be insufficient funds under the Base Case scenario to meet R&R requirements plus Operating Expenses and Debt Service, if there is no toll increase there would not be any funding for Essential Deferred Maintenance and Capital Needs. As a result, the R&R requirements would escalate significantly over time under the Base Case.

A detailed comparison was then performed, i.e., to compare toll revenue and total revenue needs for the Base Case (no toll increase) and each other toll increase scenario. See Table 4-8 on page 4-14 of the full report, which summarizes these comparisons. Operating expenses are the same for each toll scenario, and are subtracted from total revenue, resulting in the Net Turnpike Revenue values shown in the table. Net Turnpike revenue values shown in red text and italicized indicate insufficient revenues to meet total debt service, R&R, and essential deferred maintenance and capital needs. The scenarios which display net Turnpike toll revenue in unitalicized, black text would be expected to meet the total revenue needs of the Turnpike.

Based on the debt service coverage requirements of the Indenture, the 60 percent toll increase scenarios (Scenarios C, C1 and C2) and 80 percent toll increase scenarios (Scenarios D, D1 and D2) would provide sufficient revenue to meet the total annual needs of the Authority. The Base Case and the A, B, B1 and B2 toll increase scenarios would not provide sufficient annual toll revenue to meet the total needs of the Authority.

***Among those scenarios (Scenarios C, C1, C2, D, D1 and D2) that are estimated to produce enough annual revenue to meet the total needs of the Authority, Scenario C2 provides for the smallest toll increase in combination with the largest toll discount for West Virginia E-ZPass customers.***

***It is for this reason that Scenario C2 appears to us to be the best choice for the Authority in terms of meeting its revenue needs through fiscal year 2019. If this report is accepted by the Authority, Scenario C2 would be our recommended schedule of tolls and discounts to meet the referenced needs of the Authority.***

***That schedule of tolls and discounts is set forth on Table ES-2 on the next page. It combines a 60 percent increase with a 25 percent West Virginia E-ZPass discount and continuation of the existing PACC commuter discount program for passenger (Class 1) vehicles without any increase in PACC charge.***

***Table ES-3 on the page immediately following Table ES-2 summarizes the projected Turnpike toll revenue for fiscal years 2010 - 2019 if the Authority adopted that combination of tolls and discounts. AS SHOWN ON TABLE ES-3, THAT COMBINATION OF TOLLS AND DISCOUNTS IS ESTIMATED TO BE SUFFICIENT TO MEET ALL THE NEEDS OF THE TURNPIKE FOR FISCAL YEARS 2010 – 2019.***

**Table ES-2**
**Recommended New Toll Schedule**
**West Virginia Parkways, Economic Development and Tourism Authority**

| Toll Class | Vehicle Type | Number of Axles | Barriers A, B, C | | North Beckley | |
|---|---|---|---|---|---|---|
| | | | Base Toll | WV E-ZPass | Base Toll | WV E-ZPass |
| 1 | Passenger cars/pickup trucks (under 7' 6") | 2 | $2.00 | $1.50 | $0.40 | $0.30 |
| 2 | All Class 1 vehicles with a trailer (under 7' 6") | 3+ | 2.50 | 1.88 | 0.80 | 0.60 |
| 3 | Motorhomes Only (over 7' 6") | 2-3 | 2.50 | 1.88 | 0.80 | 0.60 |
| 4 | Class 3 vehicles with a trailer (over 7' 6") | 3+ | 3.25 | 2.44 | 1.20 | 0.90 |
| 5 | 2-axle trucks | 2 | 3.25 | 2.44 | 0.80 | 0.60 |
| 6 | 3-axle trucks | 3 | 4.50 | 3.38 | 1.20 | 0.90 |
| 7 | 4-axle trucks | 4 | 6.50 | 4.88 | 1.60 | 1.20 |
| 8 | 5-axle trucks | 5 | 6.75 | 5.06 | 1.60 | 1.20 |
| 9 | 6-or-more-axle trucks | 6+ | 9.50 | 7.13 | 2.40 | 1.80 |
| 10 | Oversize trucks | | 12.00 | 9.00 | 7.20 | 5.40 |
| | **PACC Rate**<br>Quarterly Cost* per Mainline Barrier (A, B, C)<br>Passenger car only | | $25.00 | - | $5.00 | - |

* Subscribers receive a 5 percent discount per mainline barrier when paying for an entire year upfront.

**Table ES-3**
**Debt Service Coverage and Net Revenue Analysis Under Scenario C2 (60 percent increase, 25 percent WV E-ZPass discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $73,072 | $33,003 | $40,069 | $10,389 | 3.86 | $8,743 | 2.09 | $20,010 | 1.02 | $927 |
| 2011 | 75,165 | 33,885 | 41,280 | 10,720 | 3.85 | 8,040 | 2.20 | 21,960 | 1.01 | 560 |
| 2012 | 78,023 | 34,797 | 43,226 | 10,401 | 4.16 | 7,837 | 2.37 | 24,036 | 1.02 | 952 |
| 2013 | 80,439 | 35,740 | 44,699 | 10,808 | 4.14 | 7,859 | 2.39 | 24,523 | 1.03 | 1,509 |
| 2014 | 82,560 | 36,666 | 45,894 | 10,458 | 4.39 | 8,482 | 2.42 | 24,817 | 1.05 | 2,137 |
| 2015 | 84,141 | 37,726 | 46,415 | 10,717 | 4.33 | 9,156 | 2.34 | 24,562 | 1.04 | 1,980 |
| 2016 | 85,753 | 38,720 | 47,033 | 10,769 | 4.37 | 9,151 | 2.36 | 25,544 | 1.03 | 1,569 |
| 2017 | 87,398 | 39,851 | 47,547 | 10,677 | 4.45 | 9,133 | 2.40 | 26,566 | 1.03 | 1,171 |
| 2018 | 88,988 | 40,971 | 48,017 | 10,719 | 4.48 | 9,099 | 2.42 | 27,924 | 1.01 | 275 |
| 2019 | 90,609 | 42,129 | 48,480 | 10,739 | 4.51 | 9,052 | 2.45 | 28,439 | 1.01 | 250 |

(1) Revenue is based on a 60 percent toll increase for all vehicles, with a 25 percent West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

## LAST PERMANENT TOLL RATE INCREASE - 1981

Toll revenue increases on the Turnpike have only occurred as a result of normal traffic growth since the last permanent rate increase in 1981.[(1)] The Authority anticipates additional revenue needs in the coming years for the purposes of meeting Turnpike revenue bond debt service coverage requirements and addressing and curtailing the essential portion of the Authority's backlog of deferred maintenance and capital needs for the Turnpike. Under current toll rates and schedules, the Authority anticipates a revenue shortfall in future fiscal years, and that some level of rate adjustment will be necessary to accommodate these needs.

## BASIS OF ANTICIPATED TOLL REVENUE AND NEEDS; STUDY APPROACH

The Authority's anticipated toll revenue and needs are based on:

- The Authority's projected Turnpike revenue refunding bond debt service for fiscal years ending 2010 through 2019 (see Appendix A of the full report);

- The findings, recommendations and projections certified by the Authority's Consulting Engineer (HNTB Corporation) in its April 2009 report (Consulting Engineer's Report) as to the annual amounts the Authority needs to spend in each fiscal year for (i) essential work on and curtailment of the backlog of deferred Turnpike maintenance and capital needs that must be addressed in each such year in the Consulting Engineer's professional opinion (Essential Deferred Maintenance and Capital Needs), (ii) Turnpike Operating Expenses and (iii) Renewal and Replacement (R&R) requirements;

- Recent traffic and toll revenue declines during the national and global recession, which are considered in this study; and,

- Projected Turnpike traffic and toll revenue set forth in this study if current toll rates and schedules continued in effect for fiscal years 2010 through and including 2019.

This 2009 study provides a new baseline traffic and revenue forecast (under existing toll rates) in consideration of recent traffic and revenue

[(1)] Rates were reclassified in 2000 with the implementation of E-ZPass, but the net effect was generally revenue-neutral.

trends and the continued national and global recessions. The study then evaluates a number of toll increase scenarios and provides a comparison of the estimated revenue generated for each scenario against Turnpike bond debt service for fiscal years ending 2010 through 2019 and estimated annual needs for (i) Turnpike operating expenses, (ii) R&R, and (iii) essential deferred maintenance and capital needs.

The scope of work for this study included: data collection and mobilization; an assessment of recent transaction and revenue and socioeconomic trends and expected future growth; development of annual transaction and revenue estimates; and study documentation.

## HISTORICAL TRAFFIC AND REVENUE TRENDS

After consistent growth throughout the 1990s, traffic and revenue on the Turnpike have been fairly stable throughout the early 2000s, and have declined in recent years. Growth patterns between passenger cars and commercial vehicles have varied markedly. Passenger car transactions peaked in FY 2004 at 27.4 million, and have decreased in three of the past four years since that peak. Commercial vehicle transactions peaked in FY 2006 at 8.4 million, but have declined sharply since then, recording a 3 percent drop between FY 2007 and FY 2008. Commercial vehicle transactions increased at an average annual rate of 0.9 percent between FY 2004 and FY 2008. Because commercial vehicles account for over half of overall revenue in spite of representing only about one fifth of overall transactions, this increase in transactions was almost enough to negate the revenue loss resulting from a 0.9 percent average annual decline in passenger car transactions. Overall, total revenue declined at an average annual rate of 0.2 percent over the past four fiscal years on the Turnpike where, according to the findings of the 2005 travel survey, 54 percent of total Turnpike transactions and 76 percent of total revenue come from vehicles registered outside West Virginia. Table ES-4 presents the recent trend in passenger car and commercial vehicle transactions and revenues.

In recent months, patterns have become more erratic, reflecting sharp fluctuations in fuel prices in 2008, and the subsequent economic recession. Monthly passenger car transactions declined for eight straight months over prior year numbers beginning in April 2008. Among commercial vehicles, monthly year-over-year declines began in FY 2007 and accelerated in 2008.

**Table ES-4**
**Average Annual Growth, FY 2004 through FY 2008**
**West Virginia Parkways, Economic Development and Tourism Authority**

| Vehicle Type | Average Annual Growth | |
|---|---|---|
| | Transactions | Revenue |
| Passenger Vehicles | -0.9% | -1.2% |
| Commercial Vehicles | 0.9 | 0.7 |
| Average | -0.5 | -0.2 |

Over the first eight months of FY 2009, total passenger car transactions declined by 2.4 percent over the prior year, and revenues were down 2.5 percent. Beginning in December 2008, however, passenger vehicle transactions have returned to positive growth compared with the same months of the prior year, with monthly growth rates ranging between 5 and 10 percent. Among commercial vehicles, total transactions declined by 10.1 percent, and revenues by 10.4 percent. Unlike passenger cars, this trend has continued through the most recent months, with year-over-year declines peaking in January 2009, which saw a 19 percent drop in transactions over January 2008. The recession has intensified during the last three months and has particularly impacted commercial vehicle traffic.

## SOCIOECONOMIC TRENDS

As part of this study, WSA reviewed national and regional socioeconomic indicators that may have influenced traffic growth on the West Virginia Turnpike in the past and which may continue to do so in the future. As traffic on the West Virginia Turnpike is regional in nature, rather than predominately influenced by local users only (according to a 2005 travel survey conducted by WSA in 2005, less than half of all motorists making trips during a typical weekday have vehicles registered in West Virginia), it is relevant to consider not only West Virginia and the counties buffering the Turnpike, but also the surrounding region. Because of the preponderance of out-of-state travelers on the Turnpike, the socioeconomic analysis conducted for this study also examines the states of Kentucky, Ohio, North Carolina, Pennsylvania, Virginia, and West Virginia, which collectively account for over three fourths of weekday Turnpike trips.

The analysis for this report accordingly addressed and considered population trends, employment and unemployment trends, recent trends in retail sales, household income, gross regional product, and fuel prices. For further discussion of WSA's analysis of socioeconomic factors and measures, please see Chapter 3 of the full report.

## ESTIMATED TRAFFIC AND REVENUE

### TOLL SENSITIVITY

A toll sensitivity analysis was conducted for the Turnpike as part of the WSA 2005 Traffic and Revenue Study. The toll sensitivity traffic retention factors from that study were felt appropriate to use in this study since no new trip information exists to suggest that travel patterns have significantly changed or that retention factors would be different. Using these traffic retention factors, the current analysis indicated that total toll revenue will increase enough to offset traffic losses due to higher toll rates. For example, a 60 percent increase in the average toll rates would result in a decline in traffic of approximately 10 percent, and a 42 percent realization (gain) in total revenue. If existing tolls were increased by 120 percent, the analysis indicates that the revenue realization would be 74 percent, with an 18 percent decrease in traffic. Retention rates are similar for passenger cars and commercial vehicles.

### BASE CASE AND TOLL INCREASE SCENARIOS

A range of traffic and revenue forecasts were prepared based on the sensitivities indicated in the previous section. Table ES-5 shows the toll rate assumptions for each scenario. A Base Case forecast was developed that assumed the current toll rate structure remained. In addition, 10 toll increase scenarios were developed that included variations on the amount of a discount that would be provided to West Virginia E-ZPass customers. For all scenarios, PACC fees were assumed to remain unchanged.

Cash rates were rounded to the nearest $0.25 at the mainline toll plazas and to the nearest $0.05 at the Beckley ramp plaza. Any discount for West Virginia E-ZPass customers was applied to the rounded toll rate and then rounded to the nearest penny. For example, under Scenario A, a 2-axle passenger vehicle paying with cash or using a non-West Virginia E-ZPass transponder would see their toll rate increase from $1.25 to $1.50 at each of the mainline plazas. A 10 percent toll rate discount for West Virginia E-ZPass customers would result in their toll rate increasing from $1.25 to $1.35.

**Table ES-5**
**Toll Scenarios Analyzed**
**West Virginia Parkways, Economic Development and Tourism Authority**

| Scenario | Percent Toll Increase | West Virginia E-ZPass Percent Discount |
|---|---|---|
| Base | 0 | 0 |
| A | 20 Cars / 30 Trucks | 10 |
| B | 40 | 0 |
| B1 | 40 | 15 |
| B2 | 40 | 25 |
| C | 60 | 0 |
| C1 | 60 | 15 |
| C2 | 60 | 25 |
| D | 80 | 0 |
| D1 | 80 | 15 |
| D2 | 80 | 25 |

No increase in PACC fees for all scenarios.

TOLL INCREASE SCENARIOS' IMPACTS ON FORECASTED TRAFFIC AND REVENUE

Table ES-6 presents the long-term forecast of revenue for the Base Case and each toll increase scenario for Fiscal Years 2010 through 2025. We have assumed that any toll increase would be implemented on July 1, 2009, the beginning of the FY 2010. As previously stated, PACC rates were unchanged under all scenarios.

The Base Case would result in the lowest revenue levels, reaching an estimated $73.2 million by 2025, and Scenario D results in the highest, reaching an estimated $112.0 million by 2025. Toll increase scenarios showing a no discount policy were evaluated to illustrate the potential cost of such discounts. No-discount toll increase scenarios would not actually be permitted under the Authority's enabling legislation.

The analysis includes an estimate of the number of cash and non-West Virginia E-ZPass customers that would shift to PACC or West Virginia E-ZPass programs for each toll increase scenario. This assumption reflects

**Table ES-6**
**Annual Revenue Forecast, FY 2009 through FY 2025**
**West Virginia Parkways, Economic Development and Tourism Authority**

**Thousands of Dollars**

| Scenario | Base | A | B | B1 | B2 | C | C1 | C2 | D | D1 | D2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nominal Base Toll Increase** | **0%** | **20% Cars / 30% Trucks** | **40%** | **40%** | **40%** | **60%** | **60%** | **60%** | **80%** | **80%** | **80%** |
| **WV E-ZPass Discount** | **No Discount** | **10%** | **No Discount** | **15%** | **25%** | **No Discount** | **15%** | **25%** | **No Discount** | **15%** | **25%** |
| **Shift to Electronic Toll Collection (ETC) (1)** | **-** | **4.0%** | **5.0%** | **5.5%** | **6.0%** | **7.5%** | **8.0%** | **8.5%** | **10.0%** | **10.5%** | **11.0%** |
| FY 2009 | $53,008 | N/A | N/A | N/A | N/A | N/A | N/A | **N/A** | N/A | N/A | N/A |
| FY 2010 | 53,268 | $62,739 | $69,149 | $68,206 | $67,513 | $74,751 | $73,853 | **$73,072** | $81,355 | $80,288 | $79,534 |
| FY 2011 | 54,798 | 64,563 | 71,146 | 70,169 | 69,450 | 76,904 | 75,974 | **75,165** | 83,710 | 82,604 | 81,823 |
| FY 2012 | 56,887 | 67,047 | 73,870 | 72,847 | 72,095 | 79,843 | 78,870 | **78,023** | 86,921 | 85,764 | 84,947 |
| FY 2013 | 58,653 | 69,146 | 76,172 | 75,111 | 74,331 | 82,327 | 81,318 | **80,439** | 89,634 | 88,434 | 87,587 |
| FY 2014 | 60,203 | 70,993 | 78,196 | 77,099 | 76,294 | 84,509 | 83,467 | **82,560** | 92,020 | 90,780 | 89,906 |
| FY 2015 | 61,358 | 72,363 | 79,700 | 78,579 | 77,757 | 86,132 | 85,068 | **84,141** | 93,791 | 92,525 | 91,632 |
| FY 2016 | 62,536 | 73,760 | 81,234 | 80,089 | 79,248 | 87,788 | 86,700 | **85,753** | 95,599 | 94,305 | 93,393 |
| FY 2017 | 63,737 | 75,186 | 82,799 | 81,628 | 80,770 | 89,477 | 88,365 | **87,398** | 97,443 | 96,120 | 95,188 |
| FY 2018 | 64,898 | 76,565 | 84,312 | 83,118 | 82,241 | 91,110 | 89,976 | **88,988** | 99,226 | 97,877 | 96,925 |
| FY 2019 | 66,082 | 77,971 | 85,855 | 84,635 | 83,740 | 92,775 | 91,617 | **90,609** | 101,044 | 99,666 | 98,695 |
| FY 2020 | 67,289 | 79,404 | 87,428 | 86,182 | 85,269 | 94,472 | 93,290 | **92,260** | 102,897 | 101,490 | 100,499 |
| FY 2021 | 68,452 | 80,786 | 88,943 | 87,673 | 86,741 | 96,107 | 94,902 | **93,852** | 104,683 | 103,248 | 102,238 |
| FY 2022 | 69,635 | 82,193 | 90,486 | 89,191 | 88,240 | 97,772 | 96,543 | **95,472** | 106,502 | 105,038 | 104,008 |
| FY 2023 | 70,841 | 83,625 | 92,058 | 90,736 | 89,767 | 99,468 | 98,214 | **97,121** | 108,354 | 106,861 | 105,810 |
| FY 2024 | 72,011 | 85,016 | 93,584 | 92,237 | 91,249 | 101,114 | 99,836 | **98,723** | 110,152 | 108,631 | 107,560 |
| FY 2025 | 73,202 | 86,432 | 95,136 | 93,763 | 92,757 | 102,789 | 101,487 | **100,353** | 111,982 | 110,432 | 109,341 |

(1) Shift to ETC includes current cash and non-West Virginia E-ZPass customers that are expected to shift to West Virginia E-Zpass or the PACC program as a result of the toll increases and related discount programs.

the increasing price differential between the PACC program and paying cash for each transaction, which reduces the number of trips needed under PACC to "break even," thereby making the PACC program more desirable for those who currently do not participate. Under the scenarios in which a discount is offered to West Virginia E-ZPass customers, some cash and non-West Virginia E-ZPass users would presumably shift to West Virginia E-ZPass to take advantage of ongoing discounts. The shift to PACC and E-ZPass is assumed to be greater as the price differentials among base rates, West Virginia E-ZPass, and PACC rates increase.

### Result of Financial Assessment of Tolling Alternatives

Estimates of yearly operating expenses, renewal and replacement requirements (R&R), and essential deferred maintenance and capital needs were provided by the Authority's Consulting Engineer, HNTB. These revenue needs, along with the annual debt service requirements from the Official Statement dated June 25, 2008 provided by the Authority, were used to assess how the projected annual revenue stream of each toll scenario would perform against the total needs of the Authority.

A summary of the needs is shown in Table ES-1. Based on the debt service coverage requirements of the Indenture, the 60 percent and 80 percent toll increase scenarios would provide sufficient revenue to meet the total annual needs of the Authority. The Base Case and toll increase scenarios A, B, B1 and B2 would not provide sufficient annual toll revenue to meet the total needs of the Authority.

Among those toll increase and discount scenarios that are estimated to produce enough annual revenue to meet the total needs of the Authority (the 60 percent and 80 percent toll increase scenarios – C, C1, C2, D, D1 and D2), Scenario C2 provides for the smallest toll increase in combination with the largest toll discount for West Virginia EZ-Pass customers.

**It is for this reason that Scenario C2 appears to us to be the best choice for the Authority in terms of meeting its revenue needs for fiscal year 2010 through fiscal year 2019.**

# CHAPTER 1

# INTRODUCTION AND SCOPE OF WORK

The West Virginia Parkways, Economic Development and Tourism Authority (the Authority) anticipates additional revenue needs in the coming years for the purposes of meeting Turnpike revenue bond debt service coverage requirements and addressing and curtailing the essential portion of the Authority's backlog of deferred maintenance and capital needs for the West Virginia Turnpike (Turnpike). Under current toll rates and schedules, the Authority anticipates a significant annual revenue shortfall in future fiscal years, and that some combination of rate adjustment and discount will be necessary to accommodate these needs. Toll revenue increases on the Turnpike have only occurred as a result of normal traffic growth since the Authority has not instituted a permanent rate increase since 1981.[(1)]

The primary purposes of this study were:

(1) To analyze recent transaction and toll revenue trends and develop traffic and toll revenue forecasts for the Turnpike in fiscal years 2009 through 2025 under current toll rates and schedules (Base Case); and

(2) To develop traffic and toll revenue forecasts for the Turnpike under various increased levels of passenger car and commercial vehicle toll rates, and to evaluate the impact of a West Virginia E-ZPass Discount program and continuation of the Parkways Authority Commuter Card (PACC) discount program. The forecasts include estimates of the number of customers that would shift from cash and non-West Virginia E-ZPass to West Virginia E-ZPass and/or the PACC program, and the number of vehicles that would stop using the Turnpike and divert to a different route, at different toll increase levels.

The last formal update of Turnpike traffic and toll revenue estimates occurred in December 2008. A comprehensive traffic and revenue study was performed in 2005. Between those two studies, an additional study was completed in June 2008.

(1) The Authority reclassified its rates in 2000 with the implementation of E-ZPass, but the net effect to the Authority was generally revenue-neutral.

This 2009 study provides a new baseline traffic and revenue forecast in consideration of the continued national and global recessions, using current toll rates and schedules. The study then evaluates a number of toll increase scenarios aimed at providing sufficient revenues to meet the Debt Service coverage requirements and projected infrastructure needs of the Authority.

Among those scenarios that are estimated to produce enough annual revenue to meet the total needs of the Authority, Scenario C2 (60 percent toll increase for all vehicles classes, with a 25 percent discount for West Virginia E-ZPass customers) provides for the smallest toll increase in combination with the largest toll discount for West Virginia E-ZPass customers.

## SCOPE OF WORK

The scope of work for this study incorporated the following tasks:

### TASK 1: DATA COLLECTION AND MOBILIZATION

This task entailed the collection and review of relevant existing data including:

- The latest transactions and revenue data on a daily, monthly and annual basis by plaza;
- Transaction and revenue data by payment method, including West Virginia and non-West Virginia E-ZPass customers and PACC customers;
- The latest State Transportation Improvement Program (STIP);
- Population, employment, income and other socioeconomic data for the region;
- A review of the previous studies conducted by WSA for the Authority;
- A review of projected annual Debt Service on the Authority's Turnpike revenue bonds for fiscal years ending June 30, 2010 through and including 2019, calculated by the Authority based on the definitions in the applicable 1993 Indenture of Trust as amended and supplemented; and
- A review of the Consulting Engineer's Report, particularly the forecasts of annual operating expenses, replacement and renewal (R&R) requirements and essential deferred maintenance and capital needs for fiscal years 2010 through 2019.

### TASK 2: SOCIOECONOMIC GROWTH ASSESSMENT

Historical and forecasted population, employment, and other economic indicators for the Turnpike corridor, West Virginia, and the surrounding States were assembled and reviewed. Based upon recent historical traffic and revenue data, as well as updated socioeconomic forecasts, WSA revised the short- and long-term growth rate estimates from the December 2008 study. Revised growth rates were developed for passenger cars and commercial vehicles at each of the four Turnpike toll plazas (Mainline Plazas A, B, and C, and the North Beckley Ramp Plaza).

### TASK 3: ANNUAL TRANSACTION AND TOLL REVENUE ESTIMATES

Monthly growth rates developed in Task 2 were used to estimate traffic and revenue through the remainder of FY 2009, and subsequent annual rates were applied to the FY 2009 estimate to develop a Base Case for the period through FY 2025. Separate traffic and revenue estimates were developed for passenger cars and commercial vehicles and for cash, E-ZPass, and PACC customers.

Toll sensitivity results from running models with 20, 40, 60, 80, 100, and 120 percent increases over current rates were used to develop traffic retention factors. These retention factors were used to estimate the number of transactions that will be lost due to a given toll increase as a result of diversion to a competing roadway and overall reduction in traffic.

Multiple discount options for West Virginia E-ZPass customers under each toll increase scenario were evaluated. In all cases, no increases were assumed for the PACC program. Each of the discount programs would be open to eligible users regardless of users' state (or country) of residency. In order to receive the E-ZPass discount, customers would have to receive their E-ZPass transponder from the Authority.

Because several scenarios included new West Virginia E-ZPass discounts, and because all scenarios assumed no increases in PACC program fees, the traffic and revenue estimates for each toll increase scenario included an estimate of the number of current cash and non-West Virginia E-ZPass customers that would obtain a West Virginia E-ZPass transponder and/or enroll in the PACC program.

### TASK 4: STUDY DOCUMENTATION

WSA developed this report, which documents historical transaction and revenue data for the Turnpike, economic conditions and forecasts for the region, and forecasts of annual transactions and revenue.

Chapter 2 of this report discusses the historical transaction and revenue trends of the Turnpike. Chapter 3 provides a discussion of forecasts of population, employment, and other economic indicators for West Virginia and the surrounding region. Chapter 4 provides a discussion of the Base Case forecast, the toll increase scenarios evaluated, the methodology, annual transaction and revenue estimates, and a financial assessment of each scenario. Appendix A presents further details of the financial assessment for the Base Case and each tolling scenario.

# CHAPTER 2

# DESCRIPTION OF THE WEST VIRGINIA TURNPIKE

Presented within this chapter is a description of the physical characteristics of the West Virginia Turnpike, the current toll schedule, and historical trends in transactions and revenue.

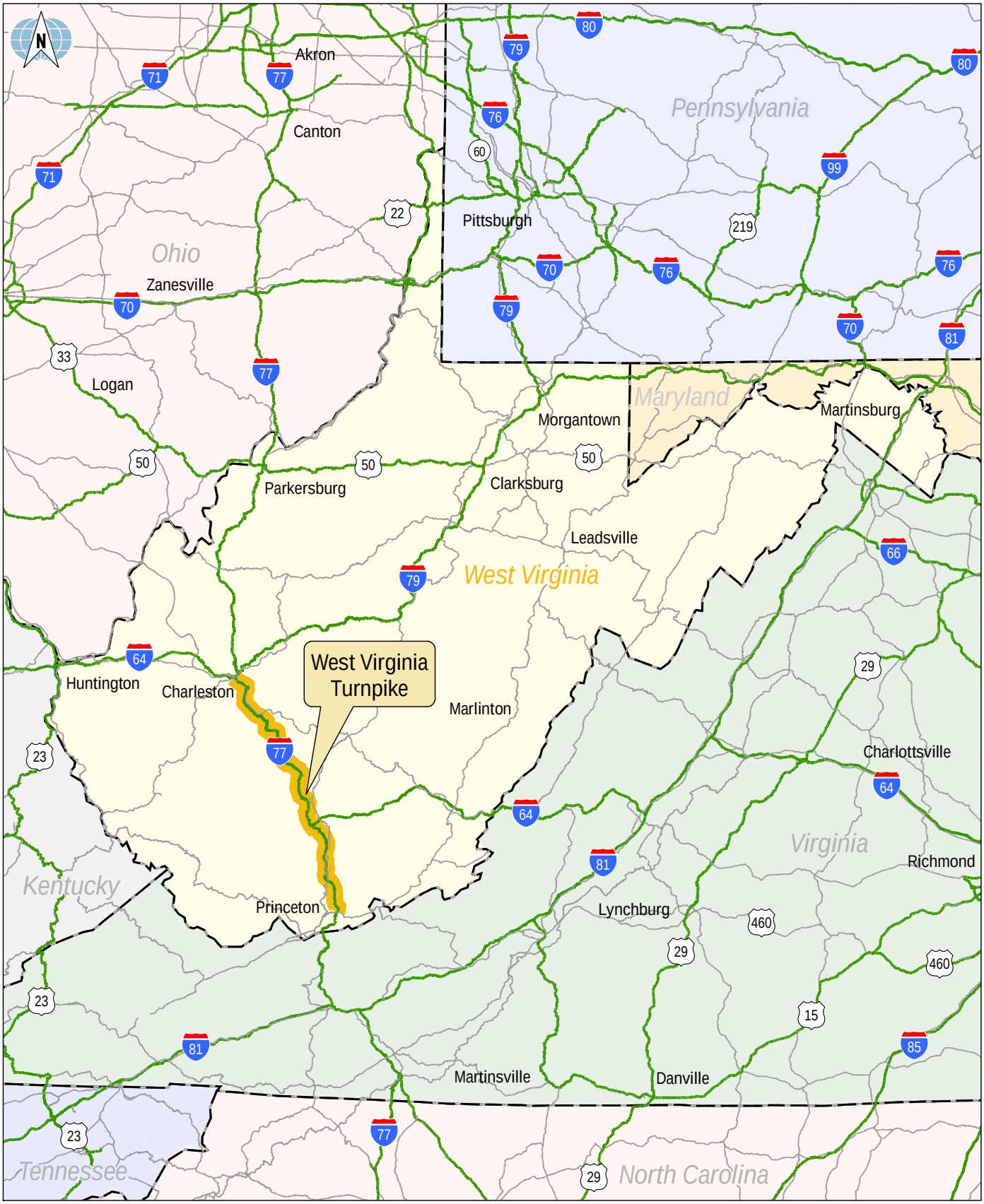
## TURNPIKE DESCRIPTION

The West Virginia Turnpike totals 88 miles in length and is comprised of four to six total travel lanes. The Turnpike is designated as Interstate 77 along its entire length, but also carries the Interstate 64 designation from Charleston to just south of Beckley. The Turnpike, and its relationship to the regional roadway network, is shown in Figure 2-1. The Turnpike is an important north-south interstate travel corridor linking eastern Ohio and western Pennsylvania in the north to western Kentucky, Virginia, North Carolina, and other states in the southeastern U.S. While the Turnpike extends through mountainous terrain over much of its length, it has posted speed limits of up to 70 miles per hour. The high speed limits are reflective of the high design standards of the facility.

Figure 2-2 presents a more detailed view of the Turnpike. The Turnpike passes through the West Virginia counties of Kanawha, Fayette, Raleigh, and Mercer, serving cities including Charleston, Beckley, and Princeton. In addition to these larger cities, a number of smaller communities with more localized trip origins and destinations are served. In addition, a large proportion of long-distance interstate trips are served by the Turnpike.

As shown in Figure 2-2, several parallel roads exist which offer toll-free alternatives to various sections of the Turnpike. These roads include:

- U.S. 19 between Princeton and Beckley;
- U.S. 60 between I-64 at Exit 156 and Charleston;
- S.R. 3/S.R. 94 between Beckley and Marmet;
- S.R. 61 between Cabin Creek and Charleston; and
- C.R. 23/C.R. 1/C.R.13/C.R. 79 between Pax and Cabin Creek.




WilburSmith ASSOCIATES

REGIONAL LOCATION MAP

FIGURE 2-1


WilburSmith ASSOCIATES

LOCATION MAP

FIGURE 2-2

These routes do not offer the higher speeds and convenience provided by the Turnpike. Many of the alterative roads pass through local communities, are narrow, and have lower standards of vertical and horizontal geometry in comparison to the Turnpike, which may be of particular concern due to the mountainous terrain through which the Turnpike corridor runs. Because of the numerous curves and grade changes, the actual average travel speeds on these facilities are significantly less than those that can be achieved on the Turnpike, resulting in overall longer travel times, especially for longer distance trips.

## TOLL SCHEDULE

A summary of the toll schedule currently in place on the Turnpike is presented in Table 2-1. The current toll rates were first made effective on January 28, 2000. While tolls were increased on January 1, 2006, they were subsequently returned to the previous rates on February 13, 2006, as the result of a court case heard in Kanawha County.

The current toll rate schedule consists of ten toll rates for ten classifications based on numbers of axles and vehicle height. The last permanent toll increase, other than the revenue-neutral reclassification in 2000 and the temporary increase in 2006, occurred in 1981. Under the current toll schedule passenger car drivers pay $1.25 at each mainline toll plaza and $0.25 at the North Beckley ramp plaza. Tolls for five-axle trucks are $4.25 at each mainline toll plaza and $1.00 at North Beckley.

Electronic toll collection (ETC), introduced in 2000 through the E-ZPass system, is available at all toll plaza lanes. A significant benefit of the E-ZPass system is that motorists are not required to come to a full stop at toll plazas to pay cash for tolls. Instead E-ZPass customers have an electronic transponder in their vehicles, and all transaction information is passed electronically between the vehicle and the toll plaza.

**Table 2-1**
**Current Toll Rate Schedule (1)**
**West Virginia Turnpike**

| Toll Class | Vehicle Type | Number of Axles | Toll Rate | |
|---|---|---|---|---|
| | | | Barriers A, B, C | North Beckley |
| 1 | Passenger cars/pickup trucks (under 7' 6") | 2 | $1.25 | $0.25 |
| 2 | All Class 1 vehicles with a trailer (under 7' 6") | 3+ | 1.50 | 0.50 |
| 3 | Motorhomes Only (over 7' 6") | 2-3 | 1.50 | 0.50 |
| 4 | Class 3 vehicles with a trailer (over 7' 6") | 3+ | 2.00 | 0.75 |
| 5 | 2-axle trucks | 2 | 2.00 | 0.50 |
| 6 | 3-axle trucks | 3 | 2.75 | 0.75 |
| 7 | 4-axle trucks | 4 | 4.00 | 1.00 |
| 8 | 5-axle trucks | 5 | 4.25 | 1.00 |
| 9 | 6-or-more-axle trucks | 6+ | 6.00 | 1.50 |
| 10 | Oversize trucks | | 7.50 | 4.50 |

(1) The current toll schedule was first introduced on January 28, 2000 and was reinstated on February 14th, 2006 after being increased January 1, 2006.

The Authority also offers the Parkways Authority Commuter Card (PACC) discount program to West Virginia residents. The program is restricted to passenger car vehicles or trucks with a gross vehicle weight of less than 8,000 pounds that are not being used for commercial or business purposes. The PACC discount program entitles customers to unlimited travel through each plaza for which they purchase a discount plan. Patrons can choose any combination of the three mainline plazas for a fixed quarterly fee of $25 per plaza. A $5 discount per mainline toll plaza is offered for an annual plan, for a total cost of $285 for all three mainline toll plazas. This equates to a 5 percent discount per mainline plaza. Included with any of the mainline plazas is the North Beckley ramp, which costs $5 annually individually. PACC subscribers are issued an E-ZPass transponder which provides unlimited access to the selected plazas, while also processing regular pay-per-use transactions at other plazas.

Tables 2-2 and 2-3 provide a comparison between the current per-mile toll rates charged on the West Virginia Turnpike and other U.S. toll facilities for cars and five-axle trucks, respectively. Table 2-2 presents a comparison of the passenger car cash toll rates. Per-mile toll rates for cars vary from $0.029 on the Garden State Parkway to $0.357 on the Delaware Turnpike. As shown, the West Virginia Turnpike cash toll amounts to $0.043 per-mile for a passenger car through trip, placing it among the bottom 20 percent of toll highways in cost per mile.

Per-mile cash toll rates for five-axle trucks are shown in Table 2-3. Again, the West Virginia Turnpike rates are toward the lower end of the range included in the comparison. A full-length trip for a 5-axle truck costs $12.75, or $0.145 per mile. The range for the facilities shown here varies from $0.072 per-mile on the southbound Garden State Parkway to $1.333 per-mile on the San Joaquin Expressway.

## HISTORICAL TRAFFIC AND REVENUE TRENDS

Historical toll transactions and toll revenues on the Turnpike are shown in Tables 2-4 and 2-5, respectively, and depicted graphically in Figure 2-3. The tables present the data by month and vehicle class between Fiscal Year 1995 and FY 2008.

As shown in Table 2-4, passenger car transactions experienced steady increases between FY 1995 and FY 2004, when they peaked at roughly 27.4 million. Since that peak, passenger vehicle transactions have declined in three of the past four years, increasing by 1.3 percent between FY 2006 and FY 2007. Commercial vehicle transactions peaked slightly later than passenger car transactions, reaching approximately 8.4 million transactions in FY 2006 after ten years of almost consistently steady growth. Since then, commercial vehicle transactions have declined over the past two fiscal years, with the rate of decline nearly doubling between FY 2007 and FY 2008, to nearly 3 percent. Commercial vehicle transactions totaled approximately 8.0 million in FY 2008.

**Table 2-2**
**Toll Rate Comparison - By Agency and Facility**
**Passenger Car (2 axle) Cash Rate**

| Agency and Facility Name | Facility Length | Trip Cost | Cost Per Mile |
|---|---|---|---|
| Delaware Turnpike - JFK Memorial Highway (I-95) | 11.2 | $4.00 | $0.357 |
| Transportation Corridor Agencies - San Joaquin, Route 73 | 15.0 | $5.00 | $0.333 |
| Miami Dade Expressway - Miami Airport Expressway - SR 112 | 4.2 | $1.25 | $0.298 |
| Pocahontas Parkway (Richmond, VA) | 8.8 | $2.50 | $0.284 |
| Transportation Corridor Agencies - Route 241 | 24.0 | $6.50 | $0.271 |
| Northwest Parkway (Colorado) | 9.5 | $2.50 | $0.263 |
| Dulles Greenway | 14.0 | $3.50 | $0.250 |
| Illinois State Toll Highway Authority - North-South (355) Tollway | 17.6 | $4.00 | $0.227 |
| E-470 Public Highway Authority (Colorado) | 55.6 | $12.25 | $0.220 |
| Tampa-Hillsboro Crosstown Expressway - Lee Roy Selmon Crosstown Expressway | 14.0 | $3.00 | $0.214 |
| Richmond Metropolitan Authority (Virginia) - Downtown Expressway | 2.5 | $0.50 | $0.200 |
| North Texas Tollway Authority - Dallas North Tollway (DNT) | 21.0 | $4.05 | $0.193 |
| Miami Dade Expressway - Don Shula (South Dade) Expressway - SR 874 | 7.3 | $1.25 | $0.171 |
| Harris County Toll Road Authority - Sam Houston Toll Road | 64.3 | $11.00 | $0.171 |
| North Texas Tollway Authority - President George Bush Turnpike (PGBT) | 30.0 | $5.00 | $0.167 |
| Richmond Metropolitan Authority (Virginia) - Powhite Parkway | 3.4 | $0.50 | $0.147 |
| Chesapeake Expressway (Route 168) - Virginia | 16.0 | $2.00 | $0.125 |
| Greenville Southern Connector | 16.0 | $2.00 | $0.125 |
| Texas Department of Transportation - Central Texas Turnpike - SH 130 | 49.0 | $6.00 | $0.122 |
| Orlando-Orange County Expressway Authority - Bee Line (SR 528) | 22.6 | $2.75 | $0.122 |
| Florida - Polk Parkway - Florida | 25.0 | $3.00 | $0.120 |
| Maryland Transportation Authority - JFK Memorial Highway | 42.0 | $5.00 | $0.119 |
| Orlando-Orange County Expressway Authority - East-West Expressway (SR 408) | 22.0 | $2.50 | $0.114 |
| New Hampshire Turnpike - Blue Star Turnpike (includes Hampton toll plaza) | 15.0 | $1.50 | $0.100 |
| South Jersey Turnpike Authority - Atlantic City Expressway | 44.0 | $3.75 | $0.085 |
| Georgia State Tollway Authority - Georgia 400 Extension | 6.2 | $0.50 | $0.081 |
| Powhite Parkway Extension - Virginia DOT | 10.0 | $0.75 | $0.075 |
| New Jersey Turnpike Authority - New Jersey Turnpike | 122.4 | $9.05 | $0.074 |
| Florida's Turnpike Enterprise - Mainline | 309.6 | $21.20 | $0.068 |
| Massachusetts Turnpike Authority - Masspike (WB) | 135.1 | $8.60 | $0.064 |
| Penn. Turnpike - Mainline (I-76 / I-70 / I-276) - East-West section (EB Direction) | 357.6 | $22.75 | $0.064 |
| Penn. Turnpike - Mainline (I-76 / I-70 / I-276) - East-West section (WB Direction) | 357.6 | $19.75 | $0.055 |
| Illinois State Toll Highway Authority - East-West (Ronald Regan) Tollway | 98.0 | $5.40 | $0.055 |
| Dulles Toll Road | 14.0 | $0.75 | $0.054 |
| Indiana Toll Road | 156.9 | $8.00 | $0.051 |
| New York State Thruway - Mainline (From PA State Line to NYC Line) EB/SB | 496.7 | $25.00 | $0.050 |
| Oklahoma Transportation Authority - Muskogee Turnpike | 53.1 | $2.50 | $0.047 |
| Oklahoma Transportation Authority - Bailey Turnpike | 86.4 | $4.00 | $0.046 |
| New Hampshire Turnpike - Spaulding (includes Dover & Rochester toll plazas) | 33.2 | $1.50 | $0.045 |
| Oklahoma Transportation Authority - Indian Nation Turnpike | 105.2 | $4.75 | $0.045 |
| New Hampshire Turnpike - Central (includes Hooksett & Bedford toll plazas) | 44.7 | $2.00 | $0.045 |
| Ohio Turnpike Commission | 237.0 | $10.25 | $0.043 |
| West Virginia Turnpike | 88.0 | $3.75 | $0.043 |
| Oklahoma Transportation Authority - Cimarron Turnpike | 59.2 | $2.50 | $0.042 |
| New York State Thruway - Mainline (From NYC Line to PA State Line) NB/WB | 496.7 | $20.50 | $0.041 |
| Oklahoma Transportation Authority - Will Rogers Turnpike | 88.5 | $3.50 | $0.040 |
| Kansas Turnpike Authority | 236.0 | $9.25 | $0.039 |
| Massachusetts Turnpike Authority - Masspike (EB) | 135.1 | $5.10 | $0.038 |
| Maine Turnpike Authority | 106.0 | $4.00 | $0.038 |
| Delaware Turnpike - Delaware SR 1 | 56.0 | $2.00 | $0.036 |
| New Jersey Turnpike Authority - Garden State Parkway (NB) | 173.0 | $6.00 | $0.035 |
| New Jersey Turnpike Authority - Garden State Parkway (SB) | 173.0 | $5.00 | $0.029 |

**Table 2-3**
**Toll Rate Comparison - By Agency and Facility**
**Commercial Vehicle (5 axle) Cash Rate**

| Agency and Facility Name | Facility Length | Trip Cost | Cost Per Mile |
|---|---|---|---|
| Transportation Corridor Agencies - San Joaquin, Route 73 | 15.0 | $20.00 | $1.333 |
| Miami Dade Expressway - Miami Airport Expressway - SR 112 | 4.2 | $5.00 | $1.190 |
| Northwest Parkway (Colorado) | 9.5 | $9.50 | $1.000 |
| Transportation Corridor Agencies - Route 241 | 24.0 | $22.25 | $0.927 |
| Illinois State Toll Highway Authority - North-South (355) Tollway | 17.6 | $16.00 | $0.909 |
| E-470 Public Highway Authority (Colorado) | 55.6 | $49.00 | $0.881 |
| Tampa-Hillsboro Crosstown Expressway - Lee Roy Selmon Crosstown Expressway | 14.0 | $12.00 | $0.857 |
| Delaware Turnpike - JFK Memorial Highway (I-95) | 11.2 | $9.00 | $0.804 |
| Dulles Greenway | 14.0 | $10.25 | $0.732 |
| North Texas Tollway Authority - Dallas North Tollway (DNT) | 21.0 | $15.00 | $0.714 |
| Miami Dade Expressway - Don Shula (South Dade) Expressway - SR 874 | 7.3 | $5.00 | $0.685 |
| North Texas Tollway Authority - President George Bush Turnpike (PGBT) | 30.0 | $20.00 | $0.667 |
| Harris County Toll Road Authority - Sam Houston Toll Road | 64.3 | $42.00 | $0.653 |
| Pocahontas Parkway (Richmond, VA) | 8.8 | $5.50 | $0.625 |
| Texas Department of Transportation - Central Texas Turnpike - SH 130 | 49.0 | $24.00 | $0.490 |
| Florida - Polk Parkway - Florida | 25.0 | $12.00 | $0.480 |
| Maryland Transportation Authority - JFK Memorial Highway | 42.0 | $20.00 | $0.476 |
| Georgia State Tollway Authority - Georgia 400 Extension | 6.2 | $2.50 | $0.403 |
| Orlando-Orange County Expressway Authority - Bee Line (SR 528) | 22.6 | $9.00 | $0.398 |
| Greenville Southern Connector | 16.0 | $6.00 | $0.375 |
| Orlando-Orange County Expressway Authority - East-West Expressway (SR 408) | 22.0 | $8.00 | $0.364 |
| South Jersey Turnpike Authority - Atlantic City Expressway | 44.0 | $15.00 | $0.341 |
| Richmond Metropolitan Authority (Virginia) - Downtown Expressway | 2.5 | $0.80 | $0.320 |
| Chesapeake Expressway (Route 168) - Virginia | 16.0 | $5.00 | $0.313 |
| New Hampshire Turnpike - Blue Star Turnpike (includes Hampton toll plaza) | 15.0 | $4.50 | $0.300 |
| Illinois State Toll Highway Authority - East-West (Ronald Regan) Tollway | 98.0 | $27.00 | $0.276 |
| New York State Thruway - Mainline (From PA State Line to NYC Line) EB/SB | 496.7 | $132.75 | $0.267 |
| New Jersey Turnpike Authority - New Jersey Turnpike | 122.4 | $32.50 | $0.266 |
| Penn. Turnpike - Mainline (I-76 / I-70 / I-276) - East-West section (EB Direction) | 357.6 | $90.00 | $0.252 |
| Richmond Metropolitan Authority (Virginia) - Powhite Parkway | 3.4 | $0.80 | $0.235 |
| New York State Thruway - Mainline (From NYC Line to PA State Line) NB/WB | 496.7 | $115.25 | $0.232 |
| Massachusetts Turnpike Authority - Masspike (WB) | 135.1 | $31.25 | $0.231 |
| Penn. Turnpike - Mainline (I-76 / I-70 / I-276) - East-West section (WB Direction) | 357.6 | $75.00 | $0.210 |
| Florida's Turnpike Enterprise - Mainline | 309.6 | $64.25 | $0.208 |
| New Hampshire Turnpike - Spaulding (includes Dover & Rochester toll plazas) | 33.2 | $6.00 | $0.181 |
| Delaware Turnpike - Delaware SR 1 | 56.0 | $10.00 | $0.179 |
| Indiana Toll Road | 156.9 | $27.25 | $0.174 |
| Oklahoma Transportation Authority - Cimarron Turnpike | 59.2 | $10.00 | $0.169 |
| Massachusetts Turnpike Authority - Masspike (EB) | 135.1 | $22.50 | $0.167 |
| Oklahoma Transportation Authority - Will Rogers Turnpike | 88.5 | $14.25 | $0.161 |
| New Hampshire Turnpike - Central (includes Hooksett & Bedford toll plazas) | 44.7 | $7.00 | $0.157 |
| Oklahoma Transportation Authority - Indian Nation Turnpike | 105.2 | $16.00 | $0.152 |
| Maine Turnpike Authority | 106.0 | $16.00 | $0.151 |
| Oklahoma Transportation Authority - Muskogee Turnpike | 53.1 | $8.00 | $0.151 |
| Powhite Parkway Extension - Virginia DOT | 10.0 | $1.50 | $0.150 |
| West Virginia Turnpike | 88.0 | $12.75 | $0.145 |
| Oklahoma Transportation Authority - Bailey Turnpike | 86.4 | $12.50 | $0.145 |
| Dulles Toll Road | 14.0 | $1.75 | $0.125 |
| Kansas Turnpike Authority | 236.0 | $28.25 | $0.120 |
| Ohio Turnpike Commission | 237.0 | $28.25 | $0.119 |
| New Jersey Turnpike Authority - Garden State Parkway (NB) | 173.0 | $17.50 | $0.101 |
| New Jersey Turnpike Authority - Garden State Parkway (SB) | 173.0 | $12.50 | $0.072 |

**Table 2-4**
**Monthly Transaction Trends**
**West Virginia Turnpike**

**Thousands**

**Total Passenger Cars and Recreational Vehicles**

| Month | FY 1995 | Percent Change | FY 1996 | Percent Change | FY 1997 | Percent Change | FY 1998 | Percent Change | FY 1999 | Percent Change | FY 2000 | Percent Change | FY 2001 | Percent Change | FY 2002 | Percent Change | FY 2003 | Percent Change | FY 2004 | Percent Change | FY 2005 | Percent Change | FY 2006 | Percent Change | FY 2007 | Percent Change | FY 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | 2,567 | 1.9 | 2,616 | (0.6) | 2,601 | 7.8 | 2,803 | (1.3) | 2,766 | 5.7 | 2,923 | (4.8) | 2,782 | 0.1 | 2,785 | 5.4 | 2,934 | 2.8 | 3,017 | 2.5 | 3,093 | (1.8) | 3,037 | (3.4) | 2,935 | (0.5) | 2,920 |
| August | 2,251 | 4.5 | 2,353 | 8.3 | 2,548 | 8.2 | 2,757 | (7.3) | 2,557 | (0.2) | 2,553 | (3.5) | 2,463 | 6.5 | 2,622 | 5.5 | 2,766 | 3.4 | 2,859 | (6.5) | 2,674 | (2.0) | 2,620 | (1.0) | 2,593 | 6.0 | 2,748 |
| September | 1,840 | 5.4 | 1,940 | (2.6) | 1,889 | 2.6 | 1,939 | 5.9 | 2,054 | 1.6 | 2,086 | (1.7) | 2,050 | 2.8 | 2,108 | (0.4) | 2,100 | 0.7 | 2,114 | 1.1 | 2,138 | (6.8) | 1,993 | 6.3 | 2,118 | 0.8 | 2,134 |
| October | 1,898 | 2.6 | 1,948 | 2.1 | 1,989 | 6.6 | 2,121 | 0.7 | 2,135 | 2.4 | 2,187 | (2.8) | 2,125 | 2.2 | 2,172 | 2.4 | 2,225 | 4.9 | 2,333 | (0.9) | 2,312 | (8.0) | 2,128 | 6.5 | 2,267 | (1.1) | 2,242 |
| November | 1,774 | 0.2 | 1,778 | (1.5) | 1,751 | 9.3 | 1,914 | 5.0 | 2,009 | 2.8 | 2,066 | (4.1) | 1,982 | 10.3 | 2,187 | (8.0) | 2,012 | 7.7 | 2,167 | (0.6) | 2,153 | (4.5) | 2,056 | 7.3 | 2,207 | (0.8) | 2,190 |
| December | 1,757 | (0.5) | 1,749 | 10.1 | 1,926 | (2.0) | 1,887 | 2.2 | 1,928 | 2.0 | 1,967 | (5.9) | 1,851 | 13.3 | 2,097 | 4.5 | 2,191 | (3.7) | 2,111 | (2.1) | 2,067 | (2.2) | 2,022 | 8.5 | 2,194 | (5.5) | 2,073 |
| January | 1,249 | (6.2) | 1,172 | 16.7 | 1,368 | 6.4 | 1,455 | (1.2) | 1,438 | (1.7) | 1,413 | 3.6 | 1,464 | 6.5 | 1,559 | 0.1 | 1,560 | 5.3 | 1,643 | (3.7) | 1,582 | 2.1 | 1,616 | 1.6 | 1,642 | (4.4) | 1,570 |
| February | 1,207 | 4.9 | 1,266 | 7.2 | 1,357 | 1.8 | 1,382 | 4.1 | 1,439 | 1.1 | 1,455 | 0.8 | 1,466 | 7.8 | 1,581 | (12.0) | 1,391 | 16.9 | 1,626 | (3.0) | 1,578 | (2.4) | 1,540 | (4.5) | 1,471 | 7.5 | 1,582 |
| March | 1,739 | 2.9 | 1,789 | 14.5 | 2,048 | (7.9) | 1,887 | (2.5) | 1,840 | 0.8 | 1,854 | 4.6 | 1,939 | 17.5 | 2,278 | (7.4) | 2,110 | 1.9 | 2,150 | 3.3 | 2,222 | (4.4) | 2,125 | 1.7 | 2,162 | 3.9 | 2,247 |
| April | 2,104 | (2.1) | 2,059 | (5.3) | 1,950 | 13.5 | 2,213 | 3.8 | 2,298 | (3.4) | 2,221 | 1.1 | 2,246 | (3.7) | 2,164 | 6.4 | 2,303 | 5.2 | 2,423 | (9.9) | 2,183 | 8.4 | 2,366 | (2.1) | 2,317 | (14.5) | 1,982 |
| May | 1,976 | 4.1 | 2,058 | 4.4 | 2,149 | 3.9 | 2,232 | 1.3 | 2,262 | (2.4) | 2,208 | (0.7) | 2,192 | 8.7 | 2,383 | 1.0 | 2,406 | (0.7) | 2,389 | (0.4) | 2,379 | 1.5 | 2,415 | (3.1) | 2,341 | (3.3) | 2,263 |
| June | 2,206 | 4.4 | 2,302 | 1.9 | 2,345 | 1.2 | 2,373 | 2.4 | 2,429 | 1.5 | 2,466 | 0.9 | 2,488 | 6.3 | 2,645 | (0.3) | 2,637 | (1.7) | 2,591 | (0.3) | 2,582 | 1.7 | 2,627 | 1.1 | 2,655 | (6.7) | 2,476 |
| **Total** | 22,568 | 2.0 | 23,030 | 3.9 | 23,921 | 4.4 | 24,963 | 0.8 | 25,155 | 1.0 | 25,399 | (1.4) | 25,048 | 6.1 | 26,581 | 0.2 | 26,635 | 3.0 | 27,423 | (1.7) | 26,963 | (1.6) | 26,545 | 1.3 | 26,902 | (1.8) | 26,427 |

**Total Commercial Vehicles**

| Month | FY 1995 | Percent Change | FY 1996 | Percent Change | FY 1997 | Percent Change | FY 1998 | Percent Change | FY 1999 | Percent Change | FY 2000 | Percent Change | FY 2001 | Percent Change | FY 2002 | Percent Change | FY 2003 | Percent Change | FY 2004 | Percent Change | FY 2005 | Percent Change | FY 2006 | Percent Change | FY 2007 | Percent Change | FY 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | 420 | 2.4 | 430 | 12.8 | 485 | 20.6 | 585 | (5.1) | 555 | 2.3 | 568 | 8.3 | 615 | (1.1) | 608 | 4.3 | 634 | (0.8) | 629 | 4.0 | 654 | 0.2 | 655 | 1.8 | 667 | 0.4 | 670 |
| August | 480 | 5.8 | 508 | 3.5 | 526 | 14.6 | 603 | (5.3) | 571 | 8.4 | 619 | 13.4 | 702 | (2.6) | 684 | (1.8) | 672 | (4.9) | 639 | 10.3 | 705 | 6.1 | 748 | 0.3 | 750 | (2.3) | 733 |
| September | 466 | 0.6 | 469 | 6.2 | 498 | 15.5 | 575 | 0.7 | 579 | 2.8 | 595 | 7.1 | 637 | (4.9) | 606 | 4.1 | 631 | 2.4 | 646 | 6.7 | 689 | 1.5 | 699 | (3.7) | 673 | (1.5) | 663 |
| October | 488 | 3.7 | 506 | 9.1 | 552 | 8.7 | 600 | 2.0 | 612 | 2.5 | 627 | 9.9 | 689 | (0.7) | 684 | 1.0 | 691 | 0.9 | 697 | 1.0 | 704 | 3.0 | 725 | 0.1 | 726 | 0.4 | 729 |
| November | 461 | 0.4 | 463 | 3.9 | 481 | 7.7 | 518 | 4.4 | 541 | 7.9 | 584 | 7.4 | 627 | (2.9) | 609 | (3.3) | 589 | 0.3 | 591 | 10.5 | 653 | 5.4 | 688 | (1.7) | 676 | (3.8) | 650 |
| December | 441 | (3.6) | 425 | 9.6 | 466 | 11.4 | 519 | 6.0 | 550 | 7.1 | 589 | (4.1) | 565 | (2.7) | 550 | 3.1 | 567 | 4.8 | 594 | 8.6 | 645 | 0.6 | 649 | (2.6) | 632 | (6.5) | 591 |
| January | 453 | 0.2 | 454 | 11.9 | 508 | 3.0 | 523 | 3.3 | 540 | 8.0 | 583 | 7.7 | 628 | (1.4) | 619 | (2.9) | 601 | (1.8) | 590 | 8.8 | 642 | 4.5 | 671 | 1.6 | 682 | (2.8) | 663 |
| February | 431 | 8.4 | 467 | 1.7 | 475 | 9.3 | 519 | 4.2 | 541 | 17.7 | 637 | (8.9) | 580 | (0.3) | 578 | (5.4) | 547 | 10.2 | 603 | 3.6 | 625 | 1.8 | 636 | (3.3) | 615 | 0.5 | 618 |
| March | 497 | 0.4 | 499 | 4.4 | 521 | 12.1 | 584 | 5.3 | 615 | 15.0 | 707 | (8.1) | 650 | (1.7) | 639 | 0.6 | 643 | 8.7 | 699 | 2.3 | 715 | 3.6 | 741 | (2.2) | 725 | (9.0) | 660 |
| April | 455 | 10.3 | 502 | 7.4 | 539 | 7.4 | 579 | 0.9 | 584 | 10.1 | 643 | (3.3) | 622 | 5.6 | 657 | (2.6) | 640 | 4.4 | 668 | 3.7 | 693 | 0.3 | 695 | (2.7) | 676 | 1.3 | 685 |
| May | 479 | 8.6 | 520 | 2.9 | 535 | 6.5 | 570 | 3.0 | 587 | 17.5 | 690 | (3.9) | 663 | 1.4 | 672 | (4.9) | 639 | 4.4 | 667 | 5.4 | 703 | 6.0 | 745 | (1.9) | 731 | (7.4) | 677 |
| June | 486 | 4.1 | 506 | 4.5 | 529 | 9.1 | 577 | 5.5 | 609 | 12.6 | 686 | (7.1) | 637 | 1.9 | 649 | (2.3) | 634 | 9.5 | 694 | 3.7 | 720 | 2.2 | 736 | (4.9) | 700 | (3.6) | 675 |
| **Total** | 5,557 | 3.5 | 5,749 | 6.4 | 6,115 | 10.4 | 6,752 | 2.0 | 6,884 | 9.4 | 7,528 | 1.2 | 7,615 | (0.8) | 7,555 | (0.9) | 7,488 | 3.1 | 7,717 | 5.6 | 8,148 | 2.9 | 8,388 | (1.6) | 8,253 | (2.9) | 8,014 |

**Total Transactions**

| Month | FY 1995 | Percent Change | FY 1996 | Percent Change | FY 1997 | Percent Change | FY 1998 | Percent Change | FY 1999 | Percent Change | FY 2000 | Percent Change | FY 2001 | Percent Change | FY 2002 | Percent Change | FY 2003 | Percent Change | FY 2004 | Percent Change | FY 2005 | Percent Change | FY 2006 | Percent Change | FY 2007 | Percent Change | FY 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | 2,987 | 2.0 | 3,046 | 1.3 | 3,086 | 9.8 | 3,388 | (2.0) | 3,321 | 5.1 | 3,491 | (2.7) | 3,397 | (0.1) | 3,393 | 5.2 | 3,568 | 2.2 | 3,646 | 2.8 | 3,747 | (1.5) | 3,692 | (2.4) | 3,602 | (0.3) | 3,590 |
| August | 2,731 | 4.8 | 2,861 | 7.4 | 3,074 | 9.3 | 3,360 | (6.9) | 3,128 | 1.4 | 3,172 | (0.2) | 3,165 | 4.5 | 3,306 | 4.0 | 3,438 | 1.7 | 3,498 | (3.4) | 3,379 | (0.3) | 3,368 | (0.7) | 3,343 | 4.1 | 3,481 |
| September | 2,306 | 4.5 | 2,409 | (0.9) | 2,387 | 5.3 | 2,514 | 4.7 | 2,633 | 1.8 | 2,681 | 0.2 | 2,687 | 1.0 | 2,714 | 0.6 | 2,731 | 1.1 | 2,760 | 2.4 | 2,827 | (4.8) | 2,692 | 3.7 | 2,791 | 0.2 | 2,797 |
| October | 2,386 | 2.8 | 2,454 | 3.5 | 2,541 | 7.1 | 2,721 | 1.0 | 2,747 | 2.4 | 2,814 | 0.0 | 2,814 | 1.5 | 2,856 | 2.1 | 2,916 | 3.9 | 3,030 | (0.5) | 3,016 | (5.4) | 2,853 | 4.9 | 2,993 | (0.7) | 2,971 |
| November | 2,235 | 0.3 | 2,241 | (0.4) | 2,232 | 9.0 | 2,432 | 4.9 | 2,550 | 3.9 | 2,650 | (1.5) | 2,609 | 7.2 | 2,796 | (7.0) | 2,601 | 6.0 | 2,758 | 1.7 | 2,806 | (2.2) | 2,744 | 5.1 | 2,883 | (1.5) | 2,840 |
| December | 2,198 | (1.1) | 2,174 | 10.0 | 2,392 | 0.6 | 2,406 | 3.0 | 2,478 | 3.1 | 2,556 | (5.5) | 2,416 | 9.6 | 2,647 | 4.2 | 2,758 | (1.9) | 2,705 | 0.3 | 2,712 | (1.5) | 2,671 | 5.8 | 2,826 | (5.7) | 2,664 |
| January | 1,702 | (4.5) | 1,626 | 15.4 | 1,876 | 5.4 | 1,978 | 0.0 | 1,978 | 0.9 | 1,996 | 4.8 | 2,092 | 4.1 | 2,178 | (0.8) | 2,161 | 3.3 | 2,233 | (0.4) | 2,224 | 2.8 | 2,287 | 1.6 | 2,324 | (3.9) | 2,233 |
| February | 1,638 | 5.8 | 1,733 | 5.7 | 1,832 | 3.8 | 1,901 | 4.2 | 1,980 | 5.7 | 2,092 | (2.2) | 2,046 | 5.5 | 2,159 | (10.2) | 1,938 | 15.0 | 2,229 | (1.2) | 2,203 | (1.2) | 2,176 | (4.1) | 2,086 | 5.5 | 2,200 |
| March | 2,236 | 2.3 | 2,288 | 12.3 | 2,569 | (3.8) | 2,471 | (0.6) | 2,455 | 4.3 | 2,561 | 1.1 | 2,589 | 12.7 | 2,917 | (5.6) | 2,753 | 3.5 | 2,849 | 3.1 | 2,937 | (2.4) | 2,866 | 0.7 | 2,887 | 0.7 | 2,907 |
| April | 2,559 | 0.1 | 2,561 | (2.8) | 2,489 | 12.2 | 2,792 | 3.2 | 2,882 | (0.6) | 2,864 | 0.1 | 2,868 | (1.6) | 2,821 | 4.3 | 2,943 | 5.0 | 3,091 | (7.0) | 2,876 | 6.4 | 3,061 | (2.2) | 2,993 | (10.9) | 2,667 |
| May | 2,455 | 5.0 | 2,578 | 4.1 | 2,684 | 4.4 | 2,802 | 1.7 | 2,849 | 1.7 | 2,898 | (1.5) | 2,855 | 7.0 | 3,055 | (0.3) | 3,045 | 0.4 | 3,056 | 0.9 | 3,082 | 2.5 | 3,160 | (2.8) | 3,072 | (4.3) | 2,940 |
| June | 2,692 | 4.3 | 2,808 | 2.4 | 2,874 | 2.6 | 2,950 | 3.0 | 3,038 | 3.8 | 3,152 | (0.9) | 3,125 | 5.4 | 3,294 | (0.7) | 3,271 | 0.4 | 3,285 | 0.5 | 3,302 | 1.8 | 3,363 | (0.2) | 3,355 | (6.1) | 3,151 |
| **Total** | 28,125 | 2.3 | 28,779 | 4.4 | 30,036 | 5.6 | 31,715 | 1.0 | 32,039 | 2.8 | 32,927 | (0.8) | 32,663 | 4.5 | 34,136 | (0.0) | 34,123 | 3.0 | 35,140 | (0.1) | 35,111 | (0.5) | 34,933 | 0.6 | 35,155 | (2.0) | 34,441 |

Note: The PAC CARD commuter discount program was initiated in January 1994 for passenger cars only.
A toll rate reclassification took effect January 28, 2000.
E-ZPass electronic toll collection was introduced for all vehicles on the Turnpike beginning in December 1999; systemwide implementation was achieved by April 2000.

Source: West Virginia Turnpike

**Table 2-5**
**Monthly Toll Revenue Trends**
**West Virginia Turnpike**

**Thousands**

**Total Passenger Cars and Recreational Vehicles**

| Month | FY 1995 | Percent Change | FY 1996 | Percent Change | FY 1997 | Percent Change | FY 1998 | Percent Change | FY 1999 | Percent Change | FY 2000 | Percent Change | FY 2001 | Percent Change | FY 2002 | Percent Change | FY 2003 | Percent Change | FY 2004 | Percent Change | FY 2005 | Percent Change | FY 2006 | Percent Change | FY 2007 | Percent Change | FY 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | $2,898 | 1.5 | $2,942 | (0.3) | $2,934 | 8.6 | $3,186 | (2.2) | $3,117 | 5.7 | $3,294 | (13.0) | $2,867 | (0.3) | $2,859 | 5.1 | $3,004 | 2.7 | $3,085 | 2.7 | $3,167 | (1.4) | $3,122 | (4.2) | $2,992 | (0.8) | $2,968 |
| August | 2,519 | 4.5 | 2,632 | 9.0 | 2,870 | 9.0 | 3,127 | (8.1) | 2,875 | (0.5) | 2,862 | (13.7) | 2,471 | 6.7 | 2,636 | 5.9 | 2,791 | 3.7 | 2,894 | (7.9) | 2,665 | (2.3) | 2,605 | (1.8) | 2,558 | 6.7 | 2,730 |
| September | 2,037 | 5.3 | 2,144 | (2.1) | 2,098 | 2.3 | 2,146 | 6.6 | 2,287 | 1.0 | 2,311 | (13.1) | 2,008 | 2.8 | 2,065 | (1.5) | 2,034 | 0.0 | 2,034 | 0.9 | 2,053 | (6.9) | 1,911 | 6.5 | 2,036 | 0.7 | 2,051 |
| October | 2,089 | 2.7 | 2,146 | 2.8 | 2,206 | 6.2 | 2,342 | 1.2 | 2,370 | 2.3 | 2,425 | (14.9) | 2,064 | 1.9 | 2,104 | 2.3 | 2,153 | 4.9 | 2,258 | (0.8) | 2,239 | (8.1) | 2,058 | 5.8 | 2,177 | (1.7) | 2,139 |
| November | 1,943 | 0.7 | 1,957 | (1.6) | 1,926 | 9.3 | 2,106 | 5.5 | 2,221 | 2.4 | 2,274 | (14.9) | 1,935 | 11.0 | 2,148 | (9.5) | 1,944 | 9.0 | 2,118 | (1.6) | 2,084 | (6.1) | 1,956 | 12.1 | 2,192 | (3.3) | 2,119 |
| December | 1,901 | 0.4 | 1,908 | 10.3 | 2,105 | (2.3) | 2,056 | 2.4 | 2,106 | (0.5) | 2,095 | (15.4) | 1,773 | 14.3 | 2,026 | 5.0 | 2,128 | (5.5) | 2,011 | (2.7) | 1,956 | (1.3) | 1,930 | 8.8 | 2,100 | (6.1) | 1,972 |
| January | 1,340 | (6.3) | 1,255 | 17.1 | 1,469 | 7.4 | 1,577 | (1.0) | 1,561 | (9.6) | 1,411 | (5.8) | 1,329 | 6.6 | 1,417 | 0.4 | 1,423 | 5.1 | 1,496 | (4.6) | 1,427 | 59.2 | 2,272 | (35.0) | 1,476 | (5.1) | 1,400 |
| February | 1,297 | 5.2 | 1,364 | 7.5 | 1,466 | 2.2 | 1,498 | 4.1 | 1,559 | (13.5) | 1,349 | (0.3) | 1,345 | 8.3 | 1,456 | (13.7) | 1,257 | 17.0 | 1,471 | (2.9) | 1,428 | 19.1 | 1,701 | (20.6) | 1,350 | 5.3 | 1,422 |
| March | 1,904 | 3.3 | 1,967 | 14.4 | 2,250 | (7.9) | 2,073 | (2.8) | 2,015 | (7.0) | 1,874 | (0.7) | 1,860 | 19.5 | 2,222 | (9.2) | 2,018 | 0.5 | 2,028 | 5.0 | 2,130 | (6.3) | 1,996 | 2.6 | 2,048 | 4.7 | 2,145 |
| April | 2,322 | (1.6) | 2,286 | (5.6) | 2,158 | 13.8 | 2,456 | 4.4 | 2,565 | (13.9) | 2,209 | 0.5 | 2,219 | (5.4) | 2,100 | 6.7 | 2,240 | 5.4 | 2,361 | (10.9) | 2,104 | 9.7 | 2,309 | (2.4) | 2,253 | (18.0) | 1,848 |
| May | 2,188 | 4.6 | 2,289 | 4.7 | 2,396 | 3.7 | 2,485 | 1.5 | 2,522 | (13.5) | 2,181 | (1.5) | 2,149 | 9.2 | 2,347 | 0.9 | 2,368 | (1.1) | 2,343 | (0.8) | 2,324 | (3.4) | 2,245 | 1.1 | 2,269 | (3.4) | 2,192 |
| June | 2,479 | 4.7 | 2,596 | 2.1 | 2,651 | 0.7 | 2,670 | 2.4 | 2,734 | (8.7) | 2,497 | 0.9 | 2,519 | 6.8 | 2,690 | (1.0) | 2,663 | (2.8) | 2,589 | (0.7) | 2,572 | 2.1 | 2,626 | 1.8 | 2,672 | (7.3) | 2,477 |
| **Total** | $24,917 | 2.3 | $25,486 | 4.1 | $26,529 | 4.5 | $27,722 | 0.8 | $27,932 | (4.1) | $26,782 | (8.4) | $24,539 | 6.2 | $26,070 | (0.2) | $26,023 | 2.6 | $26,688 | (2.0) | $26,149 | 2.2 | $26,731 | (2.3) | $26,123 | (2.5) | $25,463 |

**Total Commercial Vehicles**

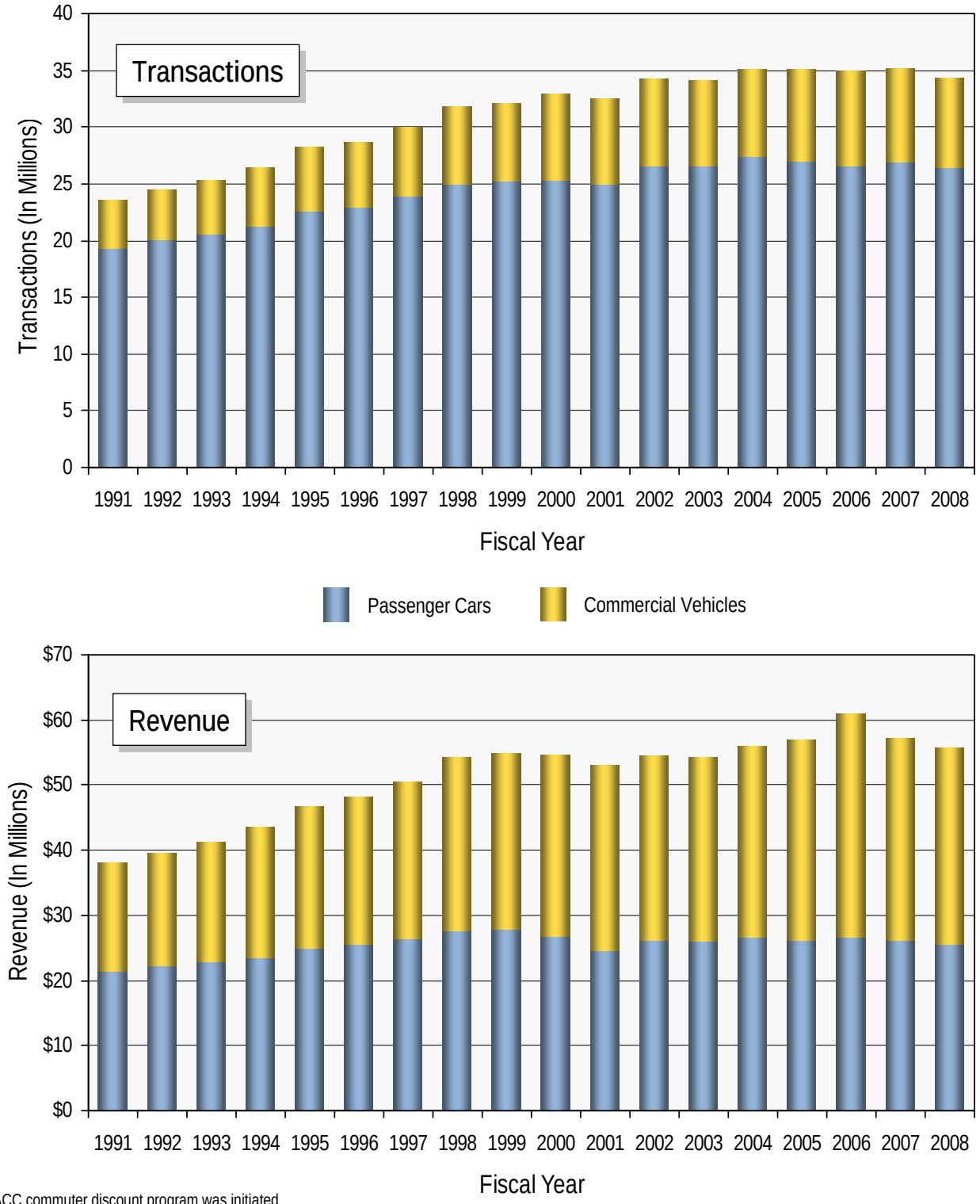
| Month | FY 1995 | Percent Change | FY 1996 | Percent Change | FY 1997 | Percent Change | FY 1998 | Percent Change | FY 1999 | Percent Change | FY 2000 | Percent Change | FY 2001 | Percent Change | FY 2002 | Percent Change | FY 2003 | Percent Change | FY 2004 | Percent Change | FY 2005 | Percent Change | FY 2006 | Percent Change | FY 2007 | Percent Change | FY 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | $1,660 | 2.2 | $1,697 | 12.9 | $1,916 | 20.6 | $2,311 | (5.7) | $2,180 | 2.2 | $2,228 | 3.9 | $2,316 | (2.5) | $2,257 | 4.9 | $2,367 | 0.5 | $2,380 | 3.8 | $2,470 | (0.9) | $2,449 | 2.0 | $2,498 | 0.6 | $2,512 |
| August | 1,899 | 5.7 | 2,007 | 3.7 | 2,081 | 14.1 | 2,375 | (5.6) | 2,242 | 7.9 | 2,420 | 9.0 | 2,639 | (3.4) | 2,548 | (1.7) | 2,504 | (3.2) | 2,423 | 10.1 | 2,668 | 4.8 | 2,796 | 0.8 | 2,818 | (2.4) | 2,751 |
| September | 1,844 | 0.3 | 1,849 | 6.5 | 1,969 | 14.4 | 2,253 | 0.6 | 2,267 | 2.5 | 2,323 | 3.0 | 2,393 | (5.3) | 2,267 | 4.1 | 2,360 | 4.1 | 2,456 | 6.7 | 2,621 | 0.3 | 2,630 | (2.9) | 2,555 | (2.4) | 2,494 |
| October | 1,929 | 3.4 | 1,995 | 9.6 | 2,186 | 8.0 | 2,360 | 1.6 | 2,397 | 2.3 | 2,451 | 6.0 | 2,597 | (1.8) | 2,549 | 1.7 | 2,593 | 2.2 | 2,651 | 1.4 | 2,687 | 1.9 | 2,739 | 0.0 | 2,739 | 1.5 | 2,779 |
| November | 1,819 | 0.4 | 1,826 | 4.2 | 1,902 | 7.0 | 2,035 | 4.0 | 2,117 | 7.7 | 2,279 | 3.9 | 2,367 | (3.6) | 2,282 | (3.0) | 2,214 | 1.7 | 2,251 | 10.7 | 2,492 | 3.9 | 2,589 | (0.8) | 2,567 | (4.5) | 2,452 |
| December | 1,743 | (4.0) | 1,674 | 9.9 | 1,840 | 10.7 | 2,037 | 5.8 | 2,156 | 1.8 | 2,194 | (3.1) | 2,126 | (2.8) | 2,066 | 3.2 | 2,133 | 6.4 | 2,270 | 8.7 | 2,467 | 15.2 | 2,841 | (15.9) | 2,390 | (6.5) | 2,235 |
| January | 1,789 | (0.3) | 1,784 | 12.4 | 2,005 | 2.4 | 2,053 | 2.3 | 2,100 | (8.9) | 1,914 | 24.1 | 2,375 | (2.1) | 2,324 | (1.1) | 2,298 | (1.7) | 2,260 | 9.1 | 2,466 | 68.1 | 4,146 | (37.6) | 2,589 | (3.0) | 2,511 |
| February | 1,704 | 8.2 | 1,843 | 1.5 | 1,871 | 8.9 | 2,038 | 3.9 | 2,117 | (5.4) | 2,003 | 9.3 | 2,189 | (0.7) | 2,173 | (4.0) | 2,087 | 10.3 | 2,303 | 4.0 | 2,394 | 29.9 | 3,109 | (25.1) | 2,329 | 0.1 | 2,332 |
| March | 1,963 | 0.3 | 1,969 | 4.1 | 2,050 | 11.7 | 2,289 | 5.2 | 2,407 | (1.9) | 2,361 | 3.9 | 2,454 | (2.4) | 2,396 | 2.1 | 2,447 | 8.7 | 2,661 | 2.8 | 2,735 | 2.5 | 2,804 | (2.3) | 2,739 | (9.1) | 2,489 |
| April | 1,796 | 10.1 | 1,977 | 7.4 | 2,124 | 6.8 | 2,268 | 0.8 | 2,287 | 5.8 | 2,420 | (3.6) | 2,332 | 5.6 | 2,463 | (1.2) | 2,434 | 4.2 | 2,536 | 4.1 | 2,641 | (0.6) | 2,624 | (2.9) | 2,547 | 1.3 | 2,579 |
| May | 1,889 | 8.4 | 2,048 | 2.8 | 2,105 | 5.9 | 2,230 | 3.0 | 2,297 | 12.4 | 2,582 | (3.9) | 2,482 | 1.2 | 2,513 | (3.5) | 2,425 | 4.0 | 2,523 | 5.7 | 2,668 | 5.4 | 2,811 | (2.3) | 2,745 | (7.4) | 2,541 |
| June | 1,909 | 4.7 | 1,998 | 4.0 | 2,078 | 8.6 | 2,256 | 5.6 | 2,383 | 8.4 | 2,582 | (7.9) | 2,377 | 2.3 | 2,431 | (1.1) | 2,405 | 9.2 | 2,627 | 4.1 | 2,735 | 2.1 | 2,793 | (6.0) | 2,626 | (3.7) | 2,529 |
| **Total** | $21,944 | 3.3 | $22,667 | 6.4 | $24,127 | 9.9 | $26,505 | 1.7 | $26,950 | 3.0 | $27,757 | 3.2 | $28,647 | (1.3) | $28,269 | (0.0) | $28,267 | 3.8 | $29,341 | 5.8 | $31,044 | 10.6 | $34,331 | (9.3) | $31,142 | (3.0) | $30,204 |

**Total Toll Revenue**

| Month | FY 1995 | Percent Change | FY 1996 | Percent Change | FY 1997 | Percent Change | FY 1998 | Percent Change | FY 1999 | Percent Change | FY 2000 | Percent Change | FY 2001 | Percent Change | FY 2002 | Percent Change | FY 2003 | Percent Change | FY 2004 | Percent Change | FY 2005 | Percent Change | FY 2006 | Percent Change | FY 2007 | Percent Change | FY 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | $4,558 | 1.8 | $4,639 | 4.5 | $4,850 | 13.3 | $5,497 | (3.6) | $5,297 | 4.2 | $5,522 | (6.1) | $5,183 | (1.3) | $5,116 | 5.0 | $5,371 | 1.8 | $5,465 | 3.1 | $5,637 | (1.2) | $5,571 | (1.5) | $5,490 | (0.2) | $5,480 |
| August | 4,418 | 5.0 | 4,639 | 6.7 | 4,951 | 11.1 | 5,502 | (7.0) | 5,117 | 3.2 | 5,282 | (3.3) | 5,110 | 1.4 | 5,184 | 2.1 | 5,295 | 0.4 | 5,317 | 0.3 | 5,333 | 1.3 | 5,401 | (0.5) | 5,376 | 2.0 | 5,481 |
| September | 3,881 | 2.9 | 3,993 | 1.9 | 4,067 | 8.2 | 4,399 | 3.5 | 4,554 | 1.8 | 4,634 | (5.0) | 4,401 | (1.6) | 4,332 | 1.4 | 4,394 | 2.2 | 4,490 | 4.1 | 4,674 | (2.8) | 4,541 | 1.1 | 4,591 | (1.0) | 4,545 |
| October | 4,018 | 3.1 | 4,141 | 6.1 | 4,392 | 7.1 | 4,702 | 1.4 | 4,767 | 2.3 | 4,876 | (4.4) | 4,661 | (0.2) | 4,653 | 2.0 | 4,746 | 3.4 | 4,909 | 0.3 | 4,926 | (2.6) | 4,797 | 2.5 | 4,916 | 0.0 | 4,918 |
| November | 3,762 | 0.6 | 3,783 | 1.2 | 3,828 | 8.2 | 4,141 | 4.8 | 4,338 | 5.0 | 4,553 | (5.5) | 4,302 | 3.0 | 4,430 | (6.1) | 4,158 | 5.1 | 4,369 | 4.7 | 4,576 | (0.7) | 4,545 | 4.7 | 4,759 | (4.0) | 4,571 |
| December | 3,644 | (1.7) | 3,582 | 10.1 | 3,945 | 3.8 | 4,093 | 4.1 | 4,262 | 0.6 | 4,289 | (9.1) | 3,899 | 4.9 | 4,092 | 4.1 | 4,261 | 0.5 | 4,281 | 3.3 | 4,423 | 7.9 | 4,771 | (5.9) | 4,490 | (6.3) | 4,207 |
| January | 3,129 | (2.9) | 3,039 | 14.3 | 3,474 | 4.5 | 3,630 | 0.9 | 3,661 | (9.2) | 3,325 | 11.4 | 3,704 | 1.0 | 3,741 | (0.5) | 3,721 | 0.9 | 3,756 | 3.6 | 3,893 | 64.9 | 6,418 | (36.7) | 4,065 | (3.8) | 3,911 |
| February | 3,001 | 6.9 | 3,207 | 4.1 | 3,337 | 6.0 | 3,536 | 4.0 | 3,676 | (8.8) | 3,352 | 5.4 | 3,534 | 2.7 | 3,629 | (7.9) | 3,344 | 12.9 | 3,774 | 1.3 | 3,822 | 25.9 | 4,810 | (23.5) | 3,679 | 2.0 | 3,754 |
| March | 3,867 | 1.8 | 3,936 | 9.2 | 4,300 | 1.4 | 4,362 | 1.4 | 4,422 | (4.2) | 4,235 | 1.9 | 4,314 | 7.0 | 4,618 | (3.3) | 4,465 | 5.0 | 4,689 | 3.8 | 4,865 | (1.3) | 4,800 | (0.3) | 4,787 | (3.2) | 4,634 |
| April | 4,118 | 3.5 | 4,263 | 0.4 | 4,282 | 10.3 | 4,724 | 2.7 | 4,852 | (4.6) | 4,629 | (1.7) | 4,551 | 0.3 | 4,563 | 2.4 | 4,674 | 4.8 | 4,897 | (3.1) | 4,745 | 4.0 | 4,933 | (2.7) | 4,800 | (7.8) | 4,427 |
| May | 4,077 | 6.4 | 4,337 | 3.8 | 4,501 | 4.8 | 4,715 | 2.2 | 4,819 | (1.2) | 4,763 | (2.8) | 4,631 | 4.9 | 4,860 | (1.4) | 4,793 | 1.5 | 4,866 | 2.6 | 4,992 | 1.3 | 5,056 | (0.8) | 5,014 | (5.6) | 4,733 |
| June | 4,388 | 4.7 | 4,594 | 2.9 | 4,729 | 4.2 | 4,926 | 3.9 | 5,117 | (0.7) | 5,079 | (3.6) | 4,896 | 4.6 | 5,121 | (1.0) | 5,068 | 2.9 | 5,216 | 1.7 | 5,307 | 2.1 | 5,419 | (2.2) | 5,298 | (5.5) | 5,006 |
| **Total** | $46,861 | 2.8 | $48,153 | 5.2 | $50,656 | 7.0 | $54,227 | 1.2 | $54,882 | (0.6) | $54,539 | (2.5) | $53,186 | 2.2 | $54,339 | (0.1) | $54,290 | 3.2 | $56,029 | 2.1 | $57,193 | 6.8 | $61,062 | (6.2) | $57,265 | (2.8) | $55,667 |
| Adjustments | -$1,037 | | -$1,248 | | -$1,461 | | -$1,565 | | -$1,698 | | $164 | | $0 | | $0 | | $0 | | $0 | | $0 | | $0 | | $0 | | $0 |
| Commuter Pass | 266 | | 323 | | 375 | | 419 | | 439 | | 480 | | 564 | | 648 | | 701 | | 667 | | 735 | | 701 | | 667 | | 735 |
| Net Toll Revenue | $46,090 | 2.5 | $47,228 | 5.0 | $49,570 | 7.1 | $53,081 | 1.0 | $53,623 | 2.9 | $55,183 | (2.6) | $53,750 | 2.3 | $54,987 | | $54,991 | | $56,696 | | $57,928 | | $61,763 | | $57,932 | | $56,402 |

(1) These estimates do not include the negative revenue impacts associated with the PACCARD commuter discount program initiated in 1994. In FY 2000/01, these losses amounted to about $1.3 million.

Source: West Virginia Turnpike




Notes:

The PACC commuter discount program was initiated in January 1994 for passenger cars only.

A toll rate reclassification took effect January 28, 2000.

E-ZPass electronic toll collection was introduced to all vehicles on the Turnpike beginning December 1999 systemwide implementation was achieved by April 2000.

Toll revenue in FY 2005/06 includes temporary toll increase.

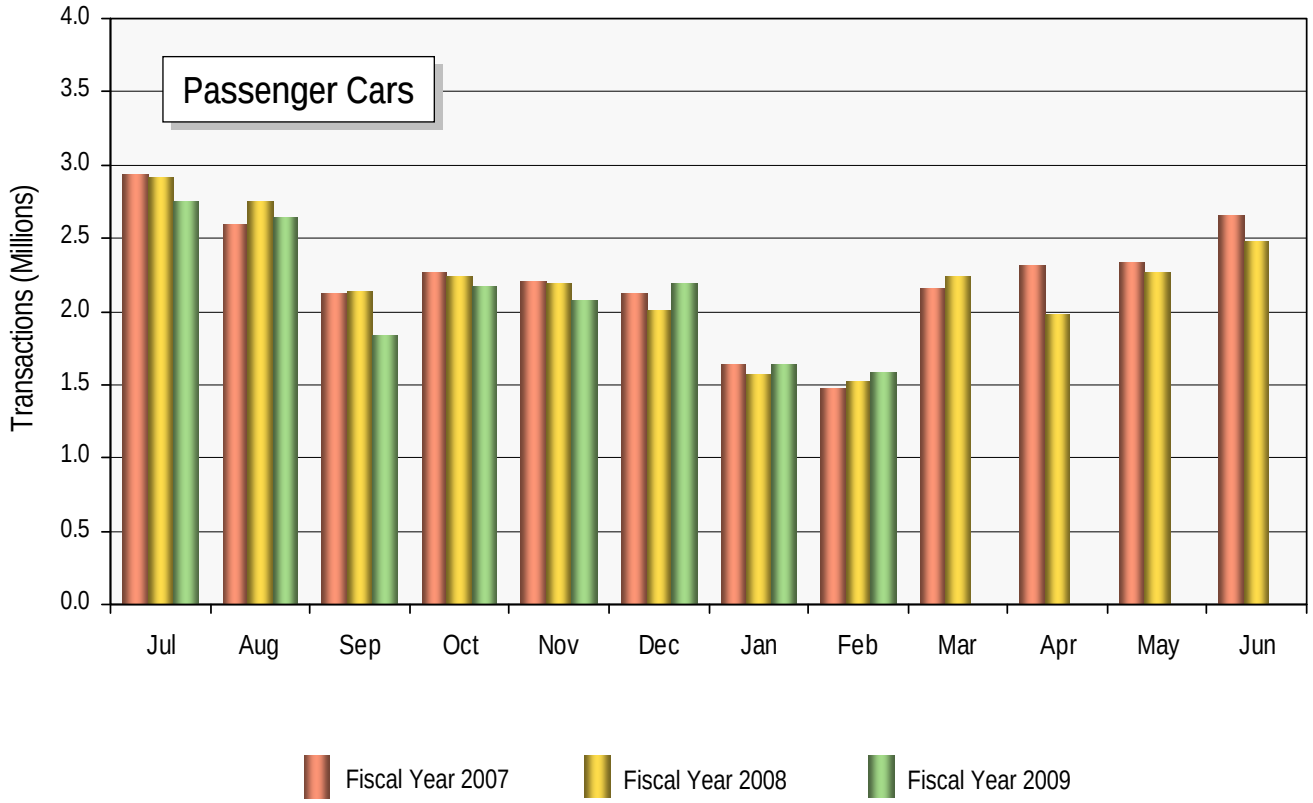
For the most part, Turnpike revenue trends, as shown in Table 2-5, closely mirror the transactions trends presented in Table 2-4, although two additional factors have had an impact on revenues since 2000. First, the introduction of the PACC program resulted in a slight decline in passenger car revenues in FY 2000 and FY 2001, due to the substantial discount offered to regular commuters through that program. In addition, the increase in toll rates during January and February 2006 resulted in an increase in toll revenue in FY 2006 and a corresponding revenue decline in the following fiscal year after tolls returned to their previous levels.

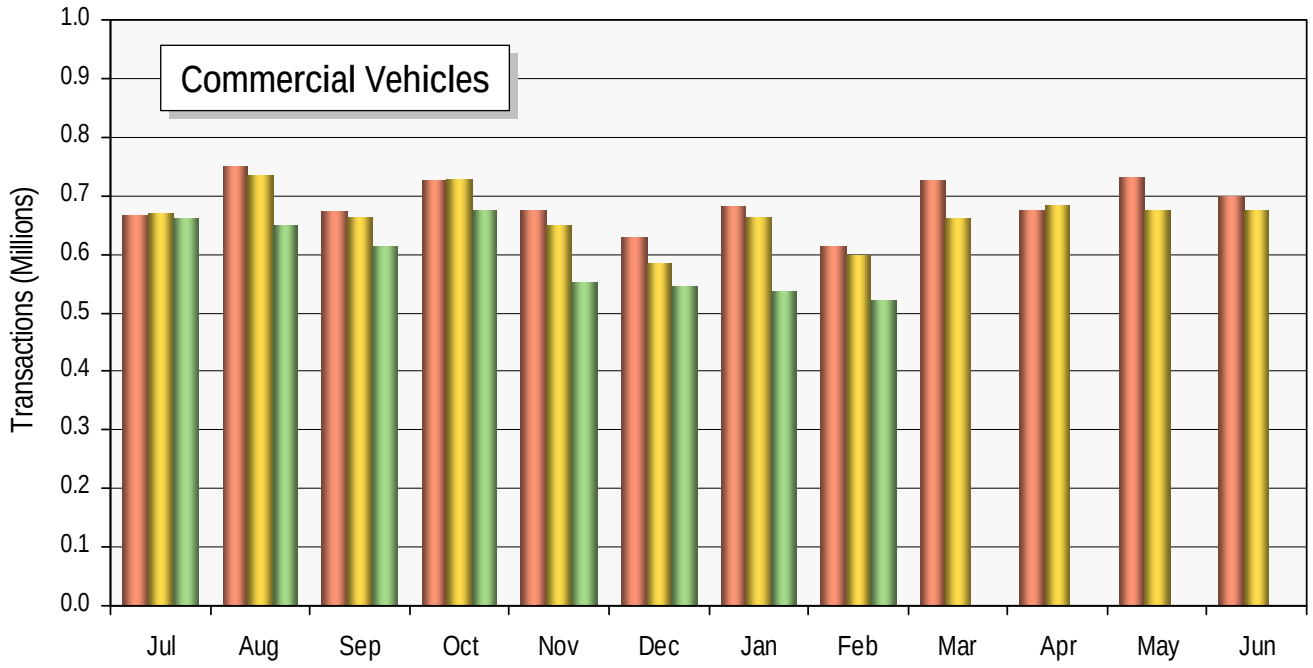
Table 2-6 presents the average annual rate of change in transactions and revenue on the Turnpike over the past five full fiscal years. Passenger car transactions and revenue have experienced average annual declines of 0.9 percent and 1.2 percent, respectively. Commercial transactions and revenue have fared somewhat better, posting gains of 0.9 percent and 0.7 percent, respectively. Although passenger car transactions outnumber commercial vehicle transactions by nearly four to one, commercial vehicles account for over half of Turnpike revenue. Therefore, the steep decline in passenger car revenue is nearly offset by a more modest increase in commercial vehicle revenue, resulting in an overall decline in revenues of only 0.2 percent per year between FY 2004 and FY 2008, while transactions declined by 0.5 percent per year.

**Table 2-6**
**Average Annual Growth**
**FY 2004 - FY 2008**

| Vehicle Type | Transactions | Revenue |
|---|---|---|
| Passenger Vehicles | -0.9% | -1.2% |
| Commercial Vehicles | 0.9 | 0.7 |
| Average | -0.5 | -0.2 |

Figure 2-4 presents monthly passenger car and commercial vehicle transaction trends for Fiscal Years 2007, 2008, and the first eight months of FY 2009. Among passenger cars, relatively stagnant growth over the first half of FY 2008 gave way to significant declines in traffic, with eight straight months of year-over-year declines beginning in April 2008. Commercial traffic in FY 2007 was already lower than most of the same months of the previous fiscal year, and the trend has accelerated since. In FY 2008, nine out of twelve months saw commercial vehicle transaction


Passenger Cars
Transactions (Millions)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Fiscal Year 2007
Fiscal Year 2008
Fiscal Year 2009


Commercial Vehicles
Transactions (Millions)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

declines over the previous year, and the annual total change over the prior year was drop of almost 3.2 percent.

Over the first eight months of FY 2009, both passenger car and commercial vehicle transactions and revenue are down significantly when compared to the previous fiscal year. Between July 2008 and February 2009 passenger car transactions and revenues declined by 2.4 percent and 2.5 percent, respectively, over the prior year. Commercial vehicle transactions are down 10.1 percent compared to the previous year, resulting in a decline in revenues of 10.4 percent. Commercial vehicle transactions in FY 2009 are down over the prior year for every month to date.

Transaction data in recent months has indicated diverging trends between passenger cars and commercial vehicles. Beginning in December of 2008, passenger vehicle transactions have returned to positive growth compared with the same months of the prior year, with monthly growth rates of between 5 and 10 percent. Commercial vehicle transactions, on the other hand, have declined at even steeper rates as a whole, reflecting the deepening recession. Since August 2008, monthly commercial vehicle transactions have declined by 5 percent or more every month compared with the same months in the prior year, with the steepest decline in January 2009, when transactions dropped by more than 19 percent over the same month in 2008. Clearly the contraction in the economy and the impact on demand for goods has resulted in a significant reduction in commercial traffic on the Turnpike.

## PAYMENT METHOD MARKET SHARES

Using Turnpike transaction and revenue data provided by the Authority, WSA estimated the share of Turnpike transactions using cash, E-ZPass, and the PACC program. For forecasting purposes, it was necessary to break out the market share by vehicle type (passenger cars versus commercial vehicles), vehicle origin (West Virginia versus out-of-state), and plaza type (Mainline versus North Beckley). The results are presented in Table 2-7. The split between in-state and out-of-state E-ZPass usage was provided by the Authority. To estimate the share of in-state and out-of-state cash transactions, WSA assumed an average total share of in-state traffic of 46 percent, based on the weighted average of weekday and weekend shares of in-state traffic determined from data gathered from the 2005 traveler survey.

The estimated market share results indicate that less than 2 percent of all transactions are attributable to in-state E-ZPass users, likely because the Turnpike does not offer a per-transaction E-ZPass discount but does offer a substantial discount for commuters through the PACC program. Indeed, a large proportion of West Virginia E-ZPass transactions are likely attributable to PACC users driving through a plaza for which they have not purchased an annual plan. In general, higher proportions of out-of-state users and commercial vehicle operators utilize E-ZPass, while in-state users and passenger car operators favor cash and the PACC program.

**Table 2-7**
**Market Share Percentages By Method of Payment**

| | Cash | | | E-Zpass | | | | |
|---|---|---|---|---|---|---|---|---|
| **Category** | WV [1] | Non-WV [1] | Subtotal | WV [1] | Non-WV [1] | Subtotal | **PACC** | **Total** |
| **Mainline Plazas** | | | | | | | | |
| Passenger Vehicles | 36.0 | 49.1 | 85.1 | 1.9 | 4.8 | 6.7 | 8.2 | 100.0 |
| Commercial Vehicles | 28.8 | 10.2 | 39.0 | 17.3 | 43.7 | 61.0 | - | 100.0 |
| **North Beckley Plaza** | | | | | | | | |
| Passenger Vehicles | 20.2 | 49.8 | 70.0 | 1.6 | 4.0 | 5.6 | 24.4 | 100.0 |
| Commercial Vehicles | 31.0 | 15.6 | 46.6 | 15.2 | 38.2 | 53.4 | - | 100.0 |

[1] WV = West Virginia.

# CHAPTER 3

# CORRIDOR GROWTH ASSESSMENT

Socioeconomic factors are key drivers that generally influence traffic demand growth and travel behavior nationwide, and specifically along the West Virginia Turnpike. As part of this study, WSA reviewed national and regional socioeconomic indicators that may have influenced traffic growth on the West Virginia Turnpike in the past and which may continue to do so in the future. Data addressing national and regional socioeconomic historic trends and projections were researched and reviewed to better understand the study corridor from a socioeconomic context.

As traffic on the West Virginia Turnpike is regional in nature, rather than predominately influenced by local users only, it is relevant to consider not only the socioeconomic dynamics pertaining to West Virginia and the counties buffering the Turnpike, but also the socioeconomic dynamics pertaining to the surrounding region of influence. According to travel survey results conducted by WSA in May 2005, 41 percent of all motorists making trips during a typical weekday at the mainline barrier plazas have vehicles registered in West Virginia. Surrounding West Virginia, travelers with vehicle registrations in Ohio, Pennsylvania, Virginia, and North Carolina are also well-represented on the Turnpike. In aggregate, vehicle registrations of travelers from these five states (including West Virginia) account for nearly 74 percent of all weekday Turnpike trips. Because of the preponderance of out-of-state travelers on the Turnpike (over half of all average weekday trips), the following socioeconomic analysis considers the broader geographic region, inclusive of the above-noted bordering states, as well as Kentucky (included because of the relative proximity to the corridor). Socioeconomic data pertaining to the United States are also provided for benchmark comparative purposes.

## POPULATION

Below, in Table 3-1, are the historical population trends and future projections for the four counties in the Turnpike corridor and the relevant

Table 3-1
Population Trends and Projections
Influence Area of West Virginia

| Region | 1990 | AAGR[1] | 2000 | AAGR[1] | 2007 | AAGR[1] | 2010 | AAGR[1] | 2015 | AAGR[1] | 2020 | AAGR[1] | 2025 | AAGR[1] | 2030 | AAGR[1] '07 to '30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West Virginia Counties | | | | | | | | | | | | | | | | |
| Fayette Co. | 47,952 | -0.1% | 47,579 | -0.4% | 46,334 | -0.1% | 46,231 | 0.0% | 46,137 | 0.0% | 46,122 | 0.0% | 46,143 | 0.0% | 46,173 | 0.0% |
| Kanawha Co. | 207,619 | -0.4% | 200,073 | -0.6% | 191,306 | -0.2% | 190,023 | -0.2% | 188,195 | -0.2% | 186,682 | -0.1% | 185,305 | -0.1% | 183,951 | -0.2% |
| Mercer Co. | 64,980 | -0.3% | 62,980 | -0.4% | 61,350 | 0.0% | 61,266 | 0.0% | 61,231 | 0.0% | 61,308 | 0.0% | 61,439 | 0.0% | 61,588 | 0.0% |
| Raleigh Co. | 76,819 | 0.3% | 79,220 | 0.0% | 79,170 | 0.2% | 79,549 | 0.2% | 80,315 | 0.2% | 81,224 | 0.2% | 82,205 | 0.2% | 83,210 | 0.2% |
| County Total | 397,370 | -0.2% | 389,852 | -0.4% | 378,160 | -0.1% | 377,069 | -0.1% | 375,878 | 0.0% | 375,336 | 0.0% | 375,092 | 0.0% | 374,922 | 0.0% |
| Region | 1990 | AAGR[1] | 2000 | AAGR[1] | 2008 | AAGR[1] | 2010 | AAGR[1] | 2015 | AAGR[1] | 2020 | AAGR[1] | 2025 | AAGR[1] | 2030 | AAGR[1] '08 to '30 |
| West Virginia and Traffic Influencing (Surrounding) States | | | | | | | | | | | | | | | | |
| Kentucky | 3,686,892 | 0.9% | 4,041,769 | 0.7% | 4,269,245 | 0.0% | 4,265,117 | 0.4% | 4,351,188 | 0.3% | 4,424,431 | 0.3% | 4,489,662 | 0.3% | 4,554,998 | 0.3% |
| North Carolina | 6,632,448 | 2.0% | 8,049,313 | 1.7% | 9,222,414 | 0.7% | 9,345,823 | 1.4% | 10,010,770 | 1.4% | 10,709,289 | 1.3% | 11,449,153 | 1.3% | 12,227,739 | 1.3% |
| Ohio | 10,847,115 | 0.5% | 11,353,140 | 0.1% | 11,485,910 | 0.4% | 11,576,181 | 0.1% | 11,635,446 | 0.0% | 11,644,058 | -0.1% | 11,605,738 | -0.1% | 11,550,528 | 0.0% |
| Pennsylvania | 11,882,842 | 0.3% | 12,281,054 | 0.2% | 12,448,279 | 0.5% | 12,584,487 | 0.2% | 12,710,938 | 0.1% | 12,787,354 | 0.0% | 12,801,945 | -0.1% | 12,768,184 | 0.1% |
| Virginia | 6,189,197 | 1.4% | 7,078,515 | 1.2% | 7,769,089 | 1.5% | 8,010,245 | 1.1% | 8,466,864 | 1.0% | 8,917,395 | 1.0% | 9,364,304 | 1.0% | 9,825,019 | 1.1% |
| West Virginia | 1,793,477 | 0.1% | 1,808,344 | 0.0% | 1,814,468 | 0.4% | 1,829,141 | -0.1% | 1,822,758 | -0.2% | 1,801,112 | -0.4% | 1,766,435 | -0.5% | 1,719,959 | -0.2% |
| Regional Total | 41,031,971 | 0.8% | 44,612,135 | 0.7% | 47,009,405 | 0.6% | 47,610,994 | 0.6% | 48,997,964 | 0.5% | 50,283,639 | 0.5% | 51,477,237 | 0.5% | 52,646,427 | 0.5% |
| United States | 248,790,925 | 1.2% | 281,421,906 | 1.0% | 304,059,724 | 0.8% | 308,935,581 | 0.9% | 322,365,787 | 0.8% | 335,804,546 | 0.8% | 349,439,199 | 0.8% | 363,584,435 | 0.8% |

AAGR[1]: Average Annual Growth Rate

Sources (data as of March 2009):

Historical Counties (1990, 2000, and 2007), and States and Nation (1990, 2000, and 2008): Population Division, United States Census Bureau

Projected Counties (2010 through 2030): Woods and Poole Economics, Inc. 2008

Projected States and Nation (2010 through 2030): Interim State Population Projections, 2005; Population Division, United States Census Bureau

six states. Counties comprising the Turnpike corridor, which include Fayette, Kanawha, Mercer, and Raleigh combined, have exhibited a decline in population between 1990 and 2007, with an average annual rate of decline amounting to 0.2 percent in the decade spanning 1990 and 2000, and a further average annual decrease between 2000 and 2007 measuring 0.4 percent per year, according to the United States Census Bureau. Of the four individual counties, only Raleigh County is the exception in terms of historical population change, exhibiting an actual population increase between 1990 and 2000; however, that growth stagnated between 2000 through 2007, amounting to no measurable increase or decrease. Relative to West Virginia, which experienced a population increase between 1990 and 2000 and no measurable change between 2000 and 2008, the individual counties comprising the corridor have not conformed to the statewide trends. West Virginia has increased in historical statewide population by about 21,000 between 1990 and 2008, a cumulative rate of growth of 1.2 percent over that entire historical time period.

Projections for the corridor area are expected to continue to follow the historical population trend, with no appreciable increase or decrease in population for the combined counties through 2030. In 2007 the population for the combined counties was about 378,000; by 2030, that figure is expected to decline by about 3,000 to 375,000, a cumulative total rate of decline of 0.9 percent.

At an individual county basis, Raleigh County's population is projected to increase at an average annual rate of 0.2 percent through 2030, consistent with the historical trend, while Kanawha County is expected to lose population, with an average annual decline of 0.2 percent over the same future horizon. Both Mercer and Fayette Counties are expected to remain relatively unchanged in population through 2030.

Historically, all of the surrounding states which could impact traffic volumes on the Turnpike have experienced rates of population growth that have exceeded the growth rate within West Virginia. Of the five comparison states, only Ohio and Pennsylvania have experienced historical population changes at rates similar to those of West Virginia, both with less than 0.5 percent average annual growth between 1990 and 2008. The six states of primary traffic influence experienced a combined average annual population growth rate of 0.8 percent between 1990 and 2000 and 0.7 percent between 2000 and 2008.

Projections of West Virginia's population indicate an expected decline from 2008 through 2030, at an average annual rate of 0.2 percent and a cumulative population loss of 95,000 persons. In comparison, the

surrounding comparison states are expected to gain in population with the exception of Ohio, which is slated to remain relatively flat. On a geographically aggregated basis, the comparison states (including West Virginia) are expected to increase in population at an average annual rate of 0.5 percent through 2030, a rate that is slightly below the projected national average annual population growth rate of 0.8 percent over the same time horizon.

## EMPLOYMENT

Historical employment trends and projections are presented below in Table 3-2 for the same geographies as presented for population, i.e., the four corridor counties, West Virginia, and the five surrounding states that generate significant Turnpike traffic, along with the national benchmark.

Employment in West Virginia has increased from 783,000 in 1990 to 922,000 in 2007, at an average annual growth rate of between 1.3 percent between 1990 and 2000 and 0.6 percent from 2000 to 2007, indicating that the rate of employment growth has slowed in recent years. Counties comprising the corridor, in aggregate, have experienced a similar growth trend as West Virginia as a whole, with a combined average annual growth rate of 1.6 percent between 1990 and 2000, and a rate of zero between 2000 and 2006. On an individual county basis, Fayette and Raleigh Counties have outpaced the rate of growth for the other two counties in recent history. Kanawha and Mercer Counties have actually experienced employment decreases recently, with average annual rates of decline measuring 0.4 percent for both counties between 2000 and 2006.

Similarly to the historical population trends, the historical employment trends for West Virginia and the counties comprising the corridor have underperformed relative to the same trend measure for the entire nation.

Of the five surrounding comparison states, North Carolina has exhibited the greatest historic employment growth rate, surpassing the national employment growth rate. Both Virginia and Kentucky have also exhibited strong employment growth between 1990 and 2000, with Virginia continuing to exhibit strong employment growth through 2007, while Kentucky has slowed. In the seven years spanning 2000 through 2007, the average annual rates of employment growth for Kentucky, Pennsylvania, and West Virginia were all 0.6 percent. Of the remaining surrounding states, only Ohio exhibited an employment growth rate that lagged behind West Virginia's growth between 2000 and 2007. Combined, the six states have exhibited historical employment growth rates that are below that of the nation, with average annual growth rates between 1990 and 2000

Table 3-2
Total Employment Trends and Projections
Influence Area of West Virginia

| Region | 1990 | AAGR[1] | 2000 | AAGR[1] | 2006 | AAGR[1] | 2010 | AAGR[1] | 2015 | AAGR[1] | 2020 | AAGR[1] | 2025 | AAGR[1] | 2030 | AAGR[1] '06 to '30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West Virginia Counties | | | | | | | | | | | | | | | | |
| Fayette Co. | 14,677 | 1.2% | 16,541 | 0.6% | 17,123 | 1.1% | 17,873 | 1.0% | 18,828 | 1.0% | 19,809 | 1.0% | 20,809 | 1.0% | 21,823 | 1.0% |
| Kanawha Co. | 119,419 | 1.5% | 138,849 | -0.4% | 135,783 | 1.2% | 142,497 | 1.2% | 151,206 | 1.2% | 160,261 | 1.1% | 169,647 | 1.1% | 179,347 | 1.2% |
| Mercer Co. | 27,402 | 0.8% | 29,748 | -0.4% | 28,991 | 0.4% | 29,407 | 0.3% | 29,869 | 0.3% | 30,261 | 0.2% | 30,588 | 0.2% | 30,841 | 0.3% |
| Raleigh Co. | 29,602 | 2.7% | 38,555 | 1.5% | 42,052 | 1.1% | 43,886 | 1.0% | 46,222 | 1.0% | 48,615 | 1.0% | 51,058 | 1.0% | 53,548 | 1.0% |
| County Total | 191,100 | 1.6% | 223,693 | 0.0% | 223,949 | 1.1% | 233,663 | 1.0% | 246,125 | 1.0% | 258,946 | 1.0% | 272,102 | 1.0% | 285,559 | 1.0% |
| Region | 1990 | AAGR[1] | 2000 | AAGR[1] | 2007 | AAGR[1] | 2010 | AAGR[1] | 2015 | AAGR[1] | 2020 | AAGR[1] | 2025 | AAGR[1] | 2030 | AAGR[1] '07 to '30 |
| West Virginia and Traffic Influencing (Surrounding) States | | | | | | | | | | | | | | | | |
| Kentucky | 1,918,471 | 2.0% | 2,332,023 | 0.6% | 2,439,287 | 1.3% | 2,537,797 | 1.1% | 2,674,326 | 1.0% | 2,817,259 | 1.0% | 2,966,626 | 1.0% | 3,122,580 | 1.1% |
| North Carolina | 3,928,125 | 2.3% | 4,924,918 | 1.5% | 5,459,346 | 0.9% | 5,606,433 | 1.4% | 5,995,977 | 1.4% | 6,419,238 | 1.4% | 6,879,319 | 1.4% | 7,379,530 | 1.3% |
| Ohio | 5,904,767 | 1.5% | 6,835,688 | 0.0% | 6,828,905 | 1.6% | 7,161,380 | 1.0% | 7,509,907 | 0.9% | 7,872,779 | 0.9% | 8,250,299 | 0.9% | 8,642,830 | 1.0% |
| Pennsylvania | 6,342,434 | 1.0% | 6,973,171 | 0.6% | 7,294,374 | 1.4% | 7,607,443 | 1.0% | 8,015,061 | 1.0% | 8,443,607 | 1.0% | 8,893,830 | 1.0% | 9,366,390 | 1.1% |
| Virginia | 3,726,176 | 1.7% | 4,407,324 | 1.6% | 4,930,591 | 1.4% | 5,142,216 | 1.4% | 5,523,307 | 1.5% | 5,936,709 | 1.5% | 6,385,722 | 1.5% | 6,874,080 | 1.5% |
| West Virginia | 782,852 | 1.3% | 886,620 | 0.6% | 922,127 | 1.6% | 965,863 | 1.0% | 1,015,634 | 1.0% | 1,067,397 | 1.0% | 1,121,083 | 1.0% | 1,176,726 | 1.1% |
| Regional Total | 22,602,825 | 1.5% | 26,359,744 | 0.8% | 27,874,630 | 1.4% | 29,021,132 | 1.2% | 30,734,212 | 1.2% | 32,556,989 | 1.2% | 34,496,879 | 1.2% | 36,562,136 | 1.2% |
| United States | 139,380,900 | 1.8% | 166,758,800 | 1.2% | 180,941,800 | 1.1% | 187,088,401 | 1.2% | 198,640,326 | 1.2% | 210,905,689 | 1.2% | 223,927,959 | 1.2% | 237,754,596 | 1.2% |

AAGR[1]: Average Annual Growth Rate

Sources (data as of March 2009):

Historical Counties (1990, 2000, and 2006), and States and Nation (1990, 2000, and 2007): United States Bureau of Economic Analysis; Regional Economic Information System

Projected Counties, States, and Nation (2010 through 2030): Woods and Poole Economics, Inc. 2008

measuring 1.5 percent and equating to 0.8 percent, on average, between 2000 and 2007. Nationally, employment has increased by 1.8 and 1.2 percent, respectively, for the periods spanning 1990 to 2000 and from 2000 to 2007.

Employment projections through 2030 predict growth for the counties comprising the corridor at a combined average of 1.0 percent annually. Kanawha County is expected to lead the four counties, with a forecast employment growth trend measuring an average annual 1.2 percent increase through 2030. Fayette and Raleigh Counties are expected to exhibit growth trends equating to the four-county average, while Mercer County is expected to exhibit a slow 0.3 percent average annual employment growth rate.

In the future, employment growth in West Virginia (estimated at 1.1 percent on average, annually through 2030) is projected to be very close to the national annual average of 1.2 percent. Virginia will continue its strong numbers with an annual growth of 1.5 percent, followed by North Carolina (1.3 percent). In aggregate, the six states are expected to have an identical average annual growth pattern as the nation (AAGR of 1.2 percent) between 2007 and 2030.

## UNEMPLOYMENT

While the previous section identifies the longer term trends in changes in employment, recent economic circumstances have drastically altered the employment and unemployment situation throughout the nation. Listed below in Table 3-3 are the recent unemployment figures for the pertinent counties and states which may impact traffic using the Turnpike.

As indicated in Table 3-3, at the national level and for a majority of the states with traffic influence on the Turnpike, unemployment rates declined somewhat from the average monthly levels in 2004, and have subsequently increased within the last year, with particularly sharp increases in all geographies in January 2009. West Virginia was the exception to this trend in 2008, with the average monthly unemployment unchanged from the previous year, which had steadily declined from the levels in 2004. On a monthly basis, this trend does not hold as readily as do the annual unemployment rate changes. As the economic situation in the nation has deteriorated lately, the actual, seasonally unadjusted monthly unemployment rate in all geographies with traffic influence on the corridor has steadily increased, particularly since September 2008, with the most marked jump in the unemployment rate occurring from December 2008 to January 2009.

Table 3-3
Unemployment Rate Trends (Seasonally Unadjusted)
Influence Area of West Virginia

| Region | 2004* | 2005* | 2006* | 2007* | 2008* | Sep-08 | Oct-08 | Nov-08 | Dec-08 | Jan-09 |
|---|---|---|---|---|---|---|---|---|---|---|
| West Virginia Counties | | | | | | | | | | |
| Fayette Co. | 6.1% | 5.7% | 5.4% | 5.4% | 5.0% | 3.6% | 3.7% | 4.3% | 4.7% | 6.5% |
| Kanawha Co. | 4.7% | 4.7% | 4.2% | 4.0% | 3.8% | 3.2% | 3.3% | 3.3% | 3.4% | 4.7% |
| Mercer Co. | 5.6% | 4.9% | 4.7% | 4.3% | 4.5% | 3.4% | 3.8% | 3.8% | 3.9% | 5.4% |
| Raleigh Co. | 5.3% | 4.6% | 4.3% | 4.4% | 4.3% | 3.5% | 3.5% | 3.5% | 3.6% | 5.0% |
| County Total | 5.1% | 4.8% | 4.4% | 4.3% | 4.1% | 3.3% | 3.5% | 3.5% | 3.6% | 5.1% |
| Region | 2004* | 2005* | 2006* | 2007* | 2008* | Sep-08 | Oct-08 | Nov-08 | Dec-08 | Jan-09 |
| West Virginia and Traffic Influencing (Surrounding) States | | | | | | | | | | |
| Kentucky | 5.6% | 6.1% | 5.9% | 5.6% | 6.4% | 6.5% | 6.3% | 6.7% | 7.6% | 9.5% |
| North Carolina | 5.5% | 5.3% | 4.7% | 4.7% | 6.3% | 6.4% | 6.9% | 7.7% | 8.4% | 10.3% |
| Ohio | 6.2% | 5.9% | 5.4% | 5.6% | 6.5% | 6.6% | 6.6% | 6.9% | 7.7% | 9.7% |
| Pennsylvania | 5.4% | 5.0% | 4.5% | 4.4% | 5.4% | 5.2% | 5.4% | 5.9% | 6.4% | 7.7% |
| Virginia | 3.7% | 3.5% | 3.0% | 3.0% | 4.0% | 4.1% | 4.2% | 4.6% | 5.1% | 6.4% |
| West Virginia | 5.3% | 4.9% | 4.6% | 4.3% | 4.3% | 3.6% | 3.7% | 4.0% | 4.4% | 6.2% |
| Regional Total | 5.4% | 5.1% | 4.7% | 4.6% | 5.7% | 5.6% | 5.8% | 6.3% | 6.9% | 8.6% |
| United States | 5.5% | 5.1% | 4.6% | 4.6% | 5.8% | 6.0% | 6.1% | 6.5% | 7.1% | 8.5% |

*note: average monthly unemployment rate

Sources (data as of March 2009):

Historical Counties (except January, 2009) and States: United States Bureau of Labor Statistics; Local Area Unemployment Statistics

Historical Counties (January, 2009): Workforce West Virginia; Research, Information, and Analysis (March, 4, 2009)

Historical National Data: Bureau of Labor Statistics; Labor Force Statistics from the Current Population Survey

West Virginia is currently experiencing the lowest unemployment rate of all the comparable states, and below that of the nation as a whole, with unemployment in January[(1)] measuring 6.2 percent. The nation as a whole experienced an 8.5 percent unemployment rate at that time and the combined weighted average unemployment for all the six traffic-influencing states measured 8.6 percent, just slightly higher than the nation. A higher unemployment rate for the combined six states is attributable to particularly high unemployment rates in Kentucky, Ohio, and North Carolina, measuring 9.5, 9.7, and 10.3 percent, respectively.

(1) Note that the released unemployment figures by the BLS for January 2009, at the time of the data collection, are preliminary numbers, subject to future revision.

Although unemployment has increased in West Virginia, as for all other states and the nation, the increase has not been as pronounced as elsewhere, suggesting that West Virginia's unemployment rate is subject to less economic volatility than the rest of the nation.

Of the counties that comprise the corridor area, Fayette County has consistently exhibited higher unemployment rates than the other three counties, while Kanawha County consistently exhibits the lowest. In aggregate, the unemployment rate at the corridor county level has been below that of West Virginia as a whole.

## RETAIL SALES

Table 3-4 shows historical and future projections of retail sales trends. In the decade spanning 1990 to 2000, the counties comprising the corridor as well as the state of West Virginia experienced real growth in retail sales slightly below the national average annual growth rate of 2.9 percent. While the combined six traffic-influencing states experienced an average annual real growth in retail sales (AAGR of 3.2 percent) slightly above the national rate, West Virginia experienced lower growth than the aggregated states or the national rate, with an average annual increase of 2.7 percent. In the years following 2000, all geographies universally experienced a decrease in real retail sales growth relative to the preceding decade, with the national rate declining to 1.4 percent on average through 2008, the six state-aggregated region to 1.6 percent on average through 2006, and West Virginia experiencing an average annual real increase of 1.2 percent through 2006.

Counties comprising the corridor have experienced historical real growth in retail sales at average annual rates below that of West Virginia as a whole, with an aggregated average of 2.6 percent between 1990 and 2000 and 0.4 percent between 2000 and 2006.

Forecasts of real retail sales growth for West Virginia and the relevant constituent counties estimate that the rate of real growth will follow the historical trend in that the growth in each geography is estimated to generally fall below the estimated real growth for the nation as a whole. Between 2008 and 2030, the nation is projected to increase real retail sales at an average annual rate of 2.0 percent, whereas retail sales in West Virginia are forecast to increase at an average annual rate of 1.2 percent between 2006 and 2030, with the counties comprising the corridor, in aggregate, appreciating at 0.9 percent per year.

Table 3-4
Retail Sales Trends and Projections
Influence Area of West Virginia

| Region | 1990 | AAGR(1) | 2000 | AAGR(1) | 2006 | AAGR(1) | 2010 | AAGR(1) | 2015 | AAGR(1) | 2020 | AAGR(1) | 2025 | AAGR(1) | 2030 | AAGR(1) '06 to '30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West Virginia Counties | | | | | | | | | | | | | | | | |
| Fayette Co. | $ 303.12 | 2.5% | $ 387.51 | 0.2% | $ 393.18 | 0.5% | $ 400.65 | 1.0% | $ 421.14 | 1.0% | $ 443.71 | 1.1% | $ 468.70 | 1.1% | $ 496.27 | 1.0% |
| Kanawha Co. | $ 2,268.77 | 2.5% | $ 2,905.86 | 0.1% | $ 2,930.46 | 0.3% | $ 2,965.42 | 0.8% | $ 3,093.40 | 0.9% | $ 3,234.01 | 0.9% | $ 3,389.44 | 1.0% | $ 3,560.25 | 0.8% |
| Mercer Co. | $ 613.31 | 2.3% | $ 771.36 | 1.3% | $ 831.32 | 0.6% | $ 851.50 | 1.0% | $ 896.36 | 1.1% | $ 945.88 | 1.1% | $ 1,000.85 | 1.2% | $ 1,061.59 | 1.0% |
| Raleigh Co. | $ 720.24 | 3.3% | $ 995.23 | 0.7% | $ 1,036.91 | 0.8% | $ 1,070.83 | 1.2% | $ 1,138.76 | 1.3% | $ 1,213.75 | 1.3% | $ 1,297.02 | 1.4% | $ 1,389.19 | 1.2% |
| County Total | $ 3,905.43 | 2.6% | $ 5,059.95 | 0.4% | $ 5,191.87 | 0.5% | $ 5,288.39 | 1.0% | $ 5,549.66 | 1.0% | $ 5,837.35 | 1.1% | $ 6,156.01 | 1.1% | $ 6,507.29 | 0.9% |

*note: in millions of constant 2004 dollars

| Region | 1990 | AAGR(1) | 2000 | AAGR(1) | 2006 | AAGR(1) | 2010 | AAGR(1) | 2015 | AAGR(1) | 2020 | AAGR(1) | 2025 | AAGR(1) | 2030 | AAGR(1) '06 to '30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West Virginia and Traffic Influencing (Surrounding) States | | | | | | | | | | | | | | | | |
| Kentucky | $ 30,003.45 | 3.5% | $ 42,386.13 | 1.6% | $ 46,510.35 | 1.2% | $ 48,823.35 | 1.7% | $ 53,054.00 | 1.7% | $ 57,720.85 | 1.7% | $ 62,897.94 | 1.8% | $ 68,634.93 | 1.6% |
| North Carolina | $ 60,923.86 | 4.4% | $ 93,275.78 | 2.3% | $ 106,918.00 | 2.0% | $ 115,542.09 | 2.2% | $ 128,770.45 | 2.2% | $ 143,355.07 | 2.2% | $ 159,526.74 | 2.2% | $ 177,461.36 | 2.1% |
| Ohio | $ 95,290.31 | 3.0% | $ 128,010.34 | 1.0% | $ 135,815.78 | 0.7% | $ 139,727.18 | 1.3% | $ 149,031.30 | 1.3% | $ 159,296.17 | 1.4% | $ 170,686.52 | 1.4% | $ 183,293.51 | 1.3% |
| Pennsylvania | $ 108,110.02 | 2.5% | $ 138,392.92 | 1.2% | $ 148,749.15 | 0.9% | $ 153,918.00 | 1.4% | $ 165,137.05 | 1.5% | $ 177,513.50 | 1.5% | $ 191,245.50 | 1.5% | $ 206,450.93 | 1.4% |
| Virginia | $ 59,544.53 | 3.3% | $ 82,633.88 | 2.4% | $ 95,377.26 | 1.9% | $ 102,760.68 | 2.5% | $ 116,065.59 | 2.4% | $ 130,724.93 | 2.4% | $ 146,970.37 | 2.3% | $ 164,986.47 | 2.3% |
| West Virginia | $ 13,498.45 | 2.7% | $ 17,681.22 | 1.2% | $ 19,000.08 | 0.7% | $ 19,545.03 | 1.2% | $ 20,790.03 | 1.3% | $ 22,163.61 | 1.3% | $ 23,687.59 | 1.4% | $ 25,373.63 | 1.2% |
| Regional Total | $ 367,370.63 | 3.2% | $ 502,380.27 | 1.6% | $ 552,370.61 | 1.2% | $ 580,316.33 | 1.7% | $ 632,848.42 | 1.8% | $ 690,774.12 | 1.8% | $ 755,014.66 | 1.8% | $ 826,200.81 | 1.7% |

*note: in millions of constant 2004 dollars

| | 1992 | AAGR1 | 2000 | AAGR1 | 2008 | AAGR1 | 2010 | AAGR1 | 2015 | AAGR1 | 2020 | AAGR1 | 2025 | AAGR1 | 2030 | AAGR1 '08 to '30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| United States | $ 2,718.56 | 2.9% | $ 3,613.69 | 1.4% | $ 3,925.95 | 2.1% | $ 3,801.98 | 2.0% | $ 4,196.09 | 2.0% | $ 4,630.84 | 2.0% | $ 5,113.10 | 2.0% | $ 5,647.91 | 2.0% |

*note: in billions of constant 2004 dollars

AAGR(1): Average Annual Growth Rate

*note: the AAGR for 2008 to 2010 and 2008 to 2030 for the nation are based on 2008 Woods and Poole Economics, 2008 data, as the U.S. Census and W&P data for that year differ slightly

Sources (data as of March 2009):

Historical Nation: United States Census Bureau; Time Series Data Monthly Retail Sales & Seasonal Factors 1992 - 2009 (note that 1992 is the earliest year of consitent data for this variable from the same source)

Historical Counties and States, and Projected Counties, States, and Nation: Woods and Poole Economics, Inc. 2008 (2006 is the last year of actual historical data in the 2008 data series)

Of the surrounding states, only North Carolina and Virginia are anticipated to have a real growth in retail sales in the future exceeding the estimated growth rate for the nation as a whole. West Virginia, of the compared states, is projected to have the smallest annual rate of real growth in retail sales.

## HOUSEHOLD INCOME

Table 3-5 shows historical and projected household income trends. Income information is presented for the four counties that comprise the Turnpike, the six states of traffic influence (including West Virginia), and the U.S. as a whole. Mean household income in 2006, the latest year of historically available data, was $69,400 for the aggregated four-county corridor area, higher than the West Virginia statewide average of $62,700, expressed in constant 2004 dollar terms. In aggregate, the states in the traffic-influencing region averaged $80,000 in 2006. West Virginia's mean household income was the lowest among the six states, and all of the surrounding states except Virginia ($93,400) had a mean income in 2006 below the national average of almost $89,000. These relative positions have not changed since 1990 when the county corridor weighted average stood at $54,300, West Virginia statewide average was $49,900, the regional weighted average was $64,700, and the national average was $69,400. Overall, the corridor counties and West Virginia as a whole grew slower than the other geographies throughout the 1990s, but then outpaced these other geographies between 2000 and 2006.

Through 2030, both the corridor's and West Virginia's mean household incomes are projected to grow at an annual average rate of 1.4 percent per year, higher than all the other geographies under consideration except for the states of Ohio and Pennsylvania, which are estimated to grow at an average rate of 1.4 percent annually, as well.

## ECONOMIC OUTPUT - GROSS DOMESTIC PRODUCT

Gross Domestic Product (GDP) is defined as the total value of goods and service produced in an economy over a time period, typically a year. Gross State Product (GSP) is equivalent to GDP at a state level. Both GSP and GDP broadly capture economic activity in their respective geographies over a specified time period and are used as a method of measuring the health of the statewide and national economy, respectively. Table 3-6 presents trends in Gross Domestic Product for the nation as whole as well as each of the six states (GSP). Gross Regional Product (GRP), which is the equivalent measure to the GDP/GSP but at a substate

Table 3-5
Mean Household Income Trends and Projections (in constant 2004 dollars)
Influence Area of West Virginia

| Region | 1990 | AAGR[1] | 2000 | AAGR[1] | 2006 | AAGR[1] | 2010 | AAGR[1] | 2015 | AAGR[1] | 2020 | AAGR[1] | 2025 | AAGR[1] | 2030 | AAGR[1] '06 to '30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West Virginia Counties | | | | | | | | | | | | | | | | |
| Fayette Co. | $ 40,528 | 1.7% | $ 47,931 | 2.0% | $ 54,086 | 1.3% | $ 56,873 | 1.7% | $ 61,787 | 1.9% | $ 67,792 | 2.0% | $ 74,821 | 2.1% | $ 83,022 | 1.8% |
| Kanawha Co. | $ 60,330 | 1.7% | $ 71,299 | 1.5% | $ 78,138 | 0.5% | $ 79,858 | 1.2% | $ 84,810 | 1.5% | $ 91,364 | 1.7% | $ 99,299 | 1.8% | $ 108,698 | 1.4% |
| Mercer Co. | $ 50,167 | 0.9% | $ 54,651 | 1.2% | $ 58,878 | 0.5% | $ 59,969 | 1.1% | $ 63,405 | 1.3% | $ 67,782 | 1.5% | $ 72,914 | 1.6% | $ 78,791 | 1.2% |
| Raleigh Co. | $ 48,870 | 1.4% | $ 56,244 | 2.1% | $ 63,839 | 0.9% | $ 66,129 | 1.4% | $ 70,813 | 1.6% | $ 76,568 | 1.7% | $ 83,220 | 1.8% | $ 90,868 | 1.5% |
| County Average[2] | $ 54,262 | 1.5% | $ 62,962 | 1.6% | $ 69,362 | 0.6% | $ 71,162 | 1.3% | $ 75,755 | 1.5% | $ 81,669 | 1.7% | $ 88,704 | 1.8% | $ 96,943 | 1.4% |
| Region | 1990 | AAGR[1] | 2000 | AAGR[1] | 2006 | AAGR[1] | 2010 | AAGR[1] | 2015 | AAGR[1] | 2020 | AAGR[1] | 2025 | AAGR[1] | 2030 | AAGR[1] '06 to '30 |
| West Virginia and Traffic Influencing (Surrounding) States | | | | | | | | | | | | | | | | |
| Kentucky | $ 54,213 | 1.9% | $ 65,588 | 0.7% | $ 68,307 | 0.6% | $ 69,869 | 1.1% | $ 73,780 | 1.3% | $ 78,895 | 1.5% | $ 85,004 | 1.6% | $ 92,146 | 1.3% |
| North Carolina | $ 59,443 | 2.1% | $ 73,392 | 0.3% | $ 74,745 | 0.1% | $ 75,099 | 0.9% | $ 78,527 | 1.2% | $ 83,351 | 1.4% | $ 89,313 | 1.5% | $ 96,448 | 1.1% |
| Ohio | $ 65,584 | 1.5% | $ 76,326 | 0.2% | $ 77,099 | 0.7% | $ 79,156 | 1.2% | $ 84,179 | 1.5% | $ 90,593 | 1.6% | $ 98,163 | 1.7% | $ 106,951 | 1.4% |
| Pennsylvania | $ 68,365 | 1.6% | $ 80,312 | 1.0% | $ 85,108 | 0.6% | $ 87,299 | 1.2% | $ 92,828 | 1.5% | $ 99,938 | 1.6% | $ 108,364 | 1.8% | $ 118,197 | 1.4% |
| Virginia | $ 72,315 | 1.8% | $ 86,044 | 1.4% | $ 93,449 | 0.3% | $ 94,720 | 0.9% | $ 99,042 | 1.2% | $ 105,201 | 1.4% | $ 112,897 | 1.6% | $ 122,198 | 1.1% |
| West Virginia | $ 49,857 | 1.4% | $ 57,047 | 1.6% | $ 62,679 | 0.7% | $ 64,450 | 1.2% | $ 68,436 | 1.4% | $ 73,534 | 1.6% | $ 79,571 | 1.7% | $ 86,586 | 1.4% |
| Regional Average[2] | $ 64,675 | 1.7% | $ 76,601 | 0.7% | $ 80,027 | 0.5% | $ 81,634 | 1.1% | $ 86,261 | 1.4% | $ 92,351 | 1.5% | $ 99,661 | 1.7% | $ 108,256 | 1.3% |
| United States | $ 69,389 | 2.0% | $ 84,344 | 0.9% | $ 88,847 | 0.4% | $ 90,137 | 1.0% | $ 94,854 | 1.3% | $ 101,268 | 1.5% | $ 109,082 | 1.6% | $ 118,359 | 1.2% |

AAGR[1]: Average Annual Growth Rate

[2]Calculated Weighted Average by the Number of Households per Geography

Sources (data as of March 2009):

Historical and Projected Counties, States, and Nation: Woods and Poole Economics, Inc. 2008 (2006 is the last year of actual historical data in the 2008 data series)

Table 3-6
Gross Regional Product Trends and Projections
Influence Area of West Virginia

| Region | 1990 | AAGR[1] | 2000 | AAGR[1] | 2006 | AAGR[1] | 2010 | AAGR[1] | 2015 | AAGR[1] | 2020 | AAGR[1] | 2025 | AAGR[1] | 2030 | AAGR[1] '06 to '30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West Virginia Counties | | | | | | | | | | | | | | | | |
| Fayette Co. | $ 643.19 | 1.1% | $ 714.02 | 2.3% | $ 820.53 | 1.9% | $ 885.28 | 2.2% | $ 988.43 | 2.2% | $ 1,102.81 | 2.2% | $ 1,229.43 | 2.2% | $ 1,369.37 | 2.2% |
| Kanawha Co. | $ 6,685.53 | 2.2% | $ 8,309.52 | 1.4% | $ 9,035.68 | 2.3% | $ 9,894.88 | 2.3% | $ 11,077.91 | 2.3% | $ 12,392.06 | 2.2% | $ 13,848.93 | 2.2% | $ 15,460.76 | 2.3% |
| Mercer Co. | $ 1,253.69 | 1.1% | $ 1,404.81 | 0.6% | $ 1,457.24 | 1.3% | $ 1,533.80 | 1.4% | $ 1,642.87 | 1.3% | $ 1,755.48 | 1.3% | $ 1,871.35 | 1.2% | $ 1,990.29 | 1.3% |
| Raleigh Co. | $ 1,402.75 | 2.9% | $ 1,872.01 | 4.1% | $ 2,378.17 | 1.9% | $ 2,565.30 | 2.1% | $ 2,846.89 | 2.1% | $ 3,153.66 | 2.0% | $ 3,487.26 | 2.0% | $ 3,849.40 | 2.0% |
| County Total | $ 9,985.16 | 2.1% | $ 12,300.36 | 1.8% | $ 13,691.63 | 2.1% | $ 14,879.26 | 2.2% | $ 16,556.10 | 2.1% | $ 18,404.00 | 2.1% | $ 20,436.96 | 2.1% | $ 22,669.82 | 2.1% |
| *note: in millions of constant 2004 dollars | | | | | | | | | | | | | | | | |

| Region | 1990 | AAGR[1] | 2000 | AAGR[1] | 2007 | AAGR[1] | 2010 | AAGR[1] | 2015 | AAGR[1] | 2020 | AAGR[1] | 2025 | AAGR[1] | 2030 | AAGR[1] '07 to '30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West Virginia and Traffic Influencing (Surrounding) States | | | | | | | | | | | | | | | | |
| Kentucky | $ 89,203 | 3.2% | $ 122,752 | 2.0% | $ 141,279 | 2.1% | $ 150,477 | 2.1% | $ 167,118 | 2.1% | $ 185,576 | 2.1% | $ 206,038 | 2.1% | $ 228,709 | 2.1% |
| North Carolina | $ 190,428 | 4.7% | $ 300,241 | 3.0% | $ 368,297 | 2.3% | $ 394,186 | 2.3% | $ 442,011 | 2.3% | $ 496,153 | 2.4% | $ 557,487 | 2.4% | $ 627,009 | 2.3% |
| Ohio | $ 301,583 | 3.1% | $ 408,083 | 0.7% | $ 428,189 | 1.9% | $ 460,936 | 1.9% | $ 507,398 | 1.9% | $ 558,417 | 1.9% | $ 614,421 | 1.9% | $ 675,872 | 1.9% |
| Pennsylvania | $ 334,763 | 2.5% | $ 427,404 | 1.7% | $ 479,435 | 2.1% | $ 521,815 | 2.1% | $ 578,230 | 2.1% | $ 640,861 | 2.1% | $ 710,373 | 2.1% | $ 787,489 | 2.1% |
| Virginia | $ 206,151 | 3.3% | $ 286,030 | 3.0% | $ 352,078 | 2.5% | $ 384,767 | 2.5% | $ 435,947 | 2.5% | $ 494,161 | 2.5% | $ 560,420 | 2.6% | $ 635,884 | 2.5% |
| West Virginia | $ 36,431 | 2.2% | $ 45,498 | 1.2% | $ 49,554 | 2.1% | $ 57,357 | 2.1% | $ 63,586 | 2.1% | $ 70,456 | 2.1% | $ 78,026 | 2.1% | $ 86,359 | 2.1% |
| Regional Total | $ 1,158,559 | 3.2% | $ 1,590,009 | 1.9% | $ 1,818,832 | 2.2% | $ 1,969,538 | 2.2% | $ 2,194,290 | 2.2% | $ 2,445,625 | 2.2% | $ 2,726,765 | 2.2% | $ 3,041,322 | 2.2% |
| *note: in millions of constant 2004 dollars | | | | | | | | | | | | | | | | |
| United States | $ 7,612.75 | 3.5% | $ 10,694.57 | 2.3% | $ 12,579.62 | 0.3% | $ 12,704.78 | 3.5% | $ 15,115.01 | 2.4% | $ 17,021.61 | 2.2% | $ 18,985.17 | 2.2% | $ 21,175.68 | 2.3% |
| *note: in billions of constant 2004 dollars | | | | | | | | | | | | | | | | |

AAGR[1]: Average Annual Growth Rate

*note: At the county and state levels the AAGR for 2007 to 2010 and 2007 to 2030 are based on 2007 Woods and Poole Economics, 2008 data.

At the national level, the AAGR for the 2007 through 2019 period is based on the Congressional Budget Office, and the 2019 through 2030 the Woods & Poole Economics, Inc. rates are applied

Sources (data as of March 2009):

Historical Counties and Projected Counties, and States: Woods and Poole Economics, Inc. 2008 (2006 is the last year of actual historical data in the 2008 data series)

Historical States and Nation: Bureau of Economic Analysis; Regional Economic Accounts (1990 data are based on SIC industry classification scheme, 2000 and 2007 data are based on NAICS)

Projected and estimated for the Nation: Congressional Budget Office, the Budget and Economic Outlook: January 2009 - for years 2007-2019; andn Woods and Poole Economics, Inc. 2008 - for years 2020-2030

level, is also presented in Table 4-6 for the four corridor counties. Historical data are provided for years 1990, 2000, and 2007 (2006 at the county level), each data year expressed in year 2004 dollar terms for ease of tracking real output growth.

As shown in Table 3-6, the aggregated corridor county GRP grew at an average annual rate of 2.1 percent per year between 1990 and 2000, slightly below the statewide growth rate of 2.2 percent per year. Both the corridor and West Virginia statewide growth in economic output were lower than the aggregated six-state region's rate of 3.2 percent per year, and the national rate of 3.5 percent through the 1990s. Growth in economic output slowed at all levels between 2000 and 2006, with similar relative relationships between the corridor, West Virginia, surrounding states, and the nation.

Future (through 2030) real economic output forecasted by Woods & Poole Economics, Inc.[(2)] for both the corridor counties and West Virginia statewide are estimated to grow at an average of 2.1 percent annually. This rate is slightly below that of all the surrounding states except Ohio, and the national average, projected at a 2.3 percent average annual rate, based on a Congressional Budget Office/W&P blended rate.

The overall current macroeconomic outlook for West Virginia and the United States economies are subject to uncertainty and on-going revisions, but the current severe economic weakness is likely to continue through the remainder of 2009, with an expected stabilization the following year, and resumed economic growth starting to recover and revert back towards the longer-term potential trajectory beyond that.

## FUEL PRICES

The cost of fuel and energy in general is significant because of the impact it has on both consumers (passenger car) and on suppliers (commercial shipping). Fuel and other energy costs rose significantly throughout 2007, and through most of 2008. Retail gasoline prices peaked in July of 2008, at $4.11 per gallon[(3)] for regular unleaded gasoline (national average), but since the peak, prices have dropped by a considerable 60 percent to around $1.61 in late December 2008, with the world market crude oil prices experiencing an 80 percent decline from the July peak through the recent low in late December 2008. More recently, average gasoline prices have

(2) Woods and Pool does not guarantee the accuracy of this data. The use of this data and the conclusions drawn are solely the responsibility of Wilbur Smith Associates.
(3) Energy Information Administration, U.S. Department of Energy.

settled under $2 per gallon (national average), and crude oil is trading in world markets at close to $50 per barrel.

A drastic decline in liquid fuel prices is mainly attributable to a significant drop in demand for fuel and other commodities that have been associated with the on-going severe recession and financial markets' instability since the second half of 2008. Going forward, it is likely that as the national and global economies recover, energy prices will tend to revert to an upward trend as well, all else being equal. Motorist sensitivity to changes in fuel costs is difficult to isolate and quantify, but it is likely that while short-term gasoline price fluctuations may not have significant implications on motorists' transportation preferences, sustained high fuel costs could change behavior.

## CONCLUSION

Economic forecasts for the region illustrate the challenges that face West Virginia as a whole, and the Turnpike, in particular. A significant indicator is the long-term forecast of flat or declining population in the State, while forecasts of employment, retail sales, household income, and others show positive, albeit lower growth trends (relative to the other geographies). A declining population would ordinarily signal a potential decline in traffic levels, but stronger expected performance in other economic variables would signal an increase. The growth rates of the most pertinent variables for the surrounding states illustrate reasonable growth that is near the national averages, with some exceptions depending on the geography.

The Turnpike's traffic base is mixed, in that it has both an intrastate and a significant interstate component. With the high number of interstate trips identified in the 2005 traffic survey, it is likely that total traffic levels will continue to be influenced by the economies of other states, and not just by West Virginia. It is reasonable, therefore, to expect continued, but slightly lower overall growth in traffic on the Turnpike as compared to historical trends and previous forecasts.

# CHAPTER 4

# ESTIMATED TRAFFIC AND REVENUE

This chapter contains the results of the traffic and revenue analysis and the long-term forecast of traffic and gross toll revenue on the Turnpike under various toll rate scenarios involving differing levels of toll increases and toll discount assumptions..

## BASIC ASSUMPTIONS

Traffic and revenue forecasts included in this report are predicated on the following basic assumptions:

1. The West Virginia Turnpike and its feeder routes will be well maintained, efficiently operated, and effectively signed and promoted in order to encourage maximum usage. A reduced level or lack of maintenance could adversely affect the usage of the Turnpike;
2. Population, employment, and other socioeconomic trends within the influence area of the Turnpike will be in accordance with the projections discussed in this report;
3. No new competing freeway or major arterial facilities, tolled or toll-free, will be constructed during the forecast period;
4. The toll rate schedules will be in accordance with the scenarios discussed in this chapter;
5. E-ZPass electronic toll collection will continue to be available to all motorists using the Turnpike;
6. The PACC discount program will continue in its current form throughout the forecast period. Annual fees to participate in the PACC program were assumed to remain unchanged throughout the forecast;
7. No national, regional, or local emergency will arise which would abnormally restrict the usage of motor vehicles during the forecast period; and
8. Motor fuel will remain in adequate supply during the forecast period and price increases over the long term will not significantly outpace inflation.

Any departure from these basic assumptions could materially impact the traffic and toll revenue forecasts.

## ROADWAY IMPROVEMENTS

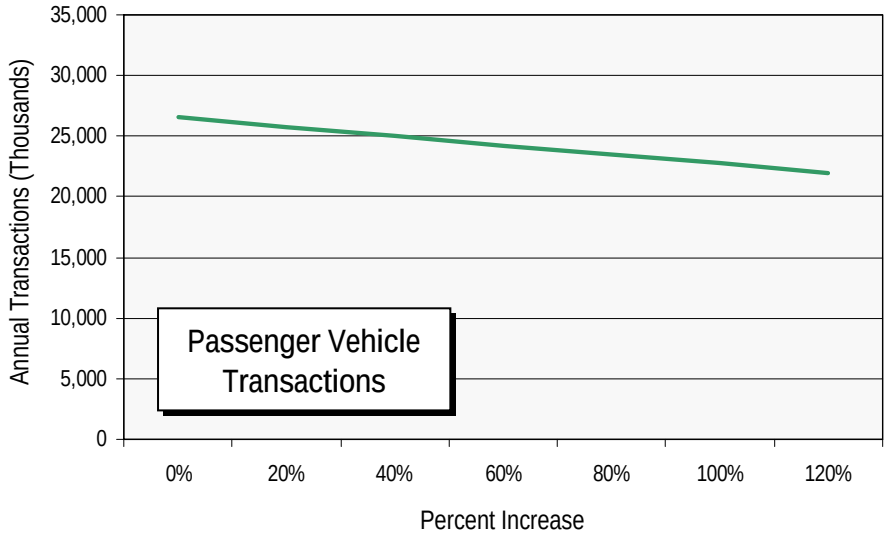
The State Transportation Improvement Program was reviewed to identify any projects that may influence future traffic and revenue on the Turnpike. There were no plans identified for non-Turnpike projects that would influence Turnpike usage. The Turnpike is currently in a maintenance program and based upon discussions with the Turnpike, no widening or interchange projects are assumed to take place during the forecast period.

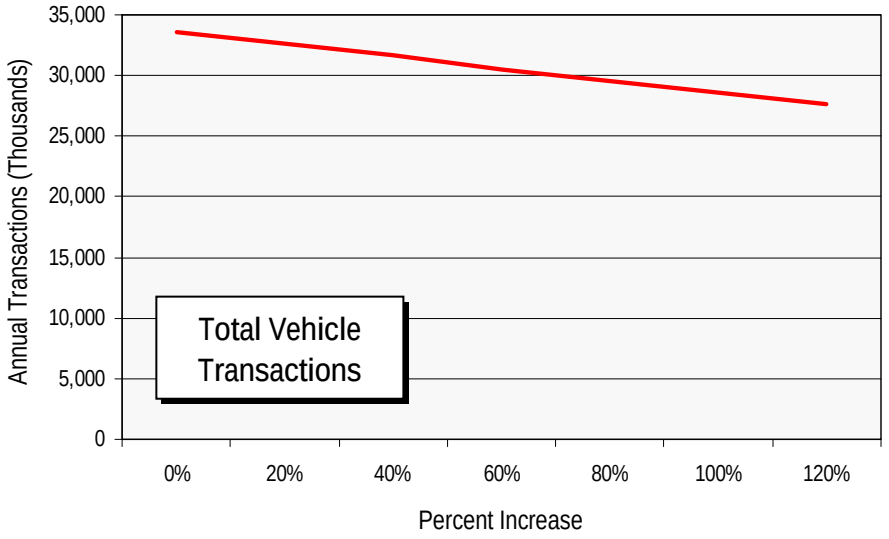
## TOLL SENSITIVITY

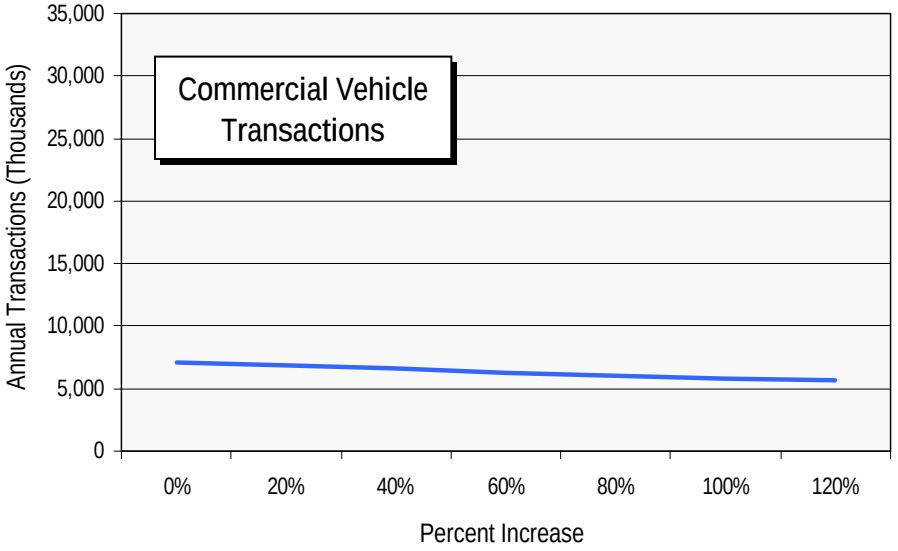
A toll sensitivity analysis was conducted for the Turnpike in the 2005 Traffic and Revenue Study using a travel demand model enhanced with survey trip data which included the actual origins and destinations of trips made by motorists using the Turnpike. For this study, we utilized the toll sensitivity analysis from that study which calculated traffic retention factors for toll increases ranging from 20 to 120 percent over existing rates. There is no new trip information to suggest that travel patterns have significantly changed or that the retention factors would be different from those estimated during the 2005 study.

Figures 4-1 and 4-2 provide graphic displays of the toll revenue sensitivity for passenger vehicles and commercial vehicles over this range of toll increases. These toll sensitivity curves have been updated to reflect FY 2010 transaction and revenue estimates. For passenger vehicles, the 2-axle toll rate is displayed along the x-axis, while for commercial vehicles, the 5-axle toll rate is displayed. Table 4-1 summarizes the results of this analysis by showing the decreases in traffic and increases in revenue as the toll rates are increased.

This analysis demonstrates that total toll revenue will increase at a greater rate than the rate of traffic loss due to the higher toll. For example, a 60 percent increase in the average toll rates would result in approximately a 10 percent decrease in traffic and a 42 percent realization (gain) in total revenue. That is, although there would be a 10 percent loss of traffic, the remaining 90 percent of the traffic would still generate 42 percent more total revenue at the 60 percent higher toll rate in comparison to the traffic at the existing toll rate. If existing tolls were increased by 120 percent, the analysis indicates that the revenue realization would be 74 percent, with an 18 percent decrease in traffic.



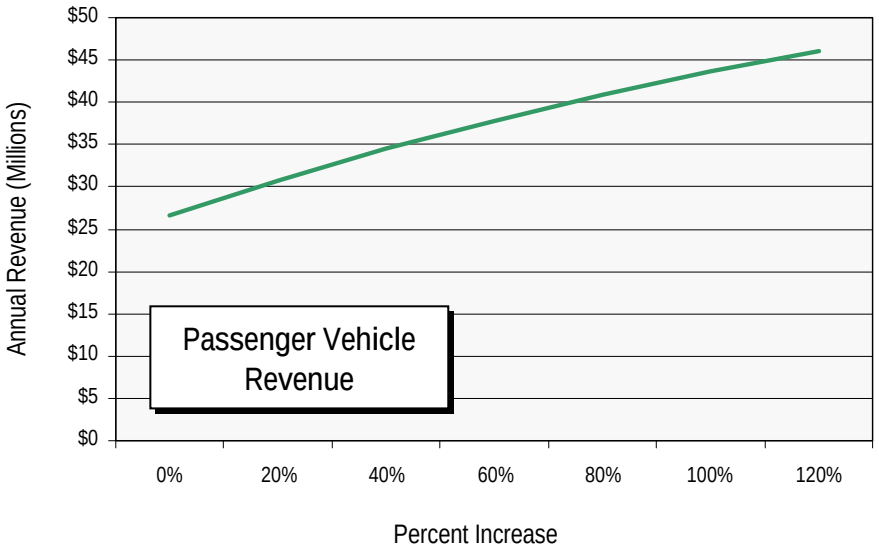



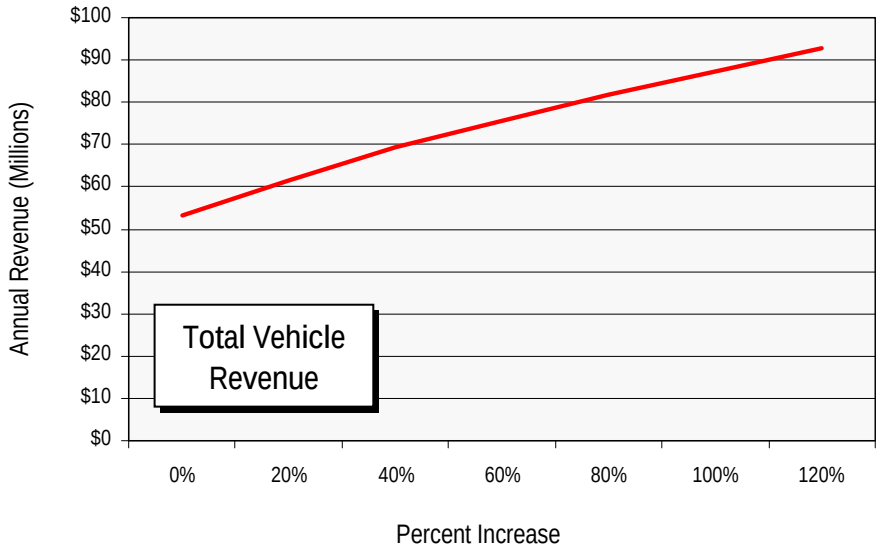



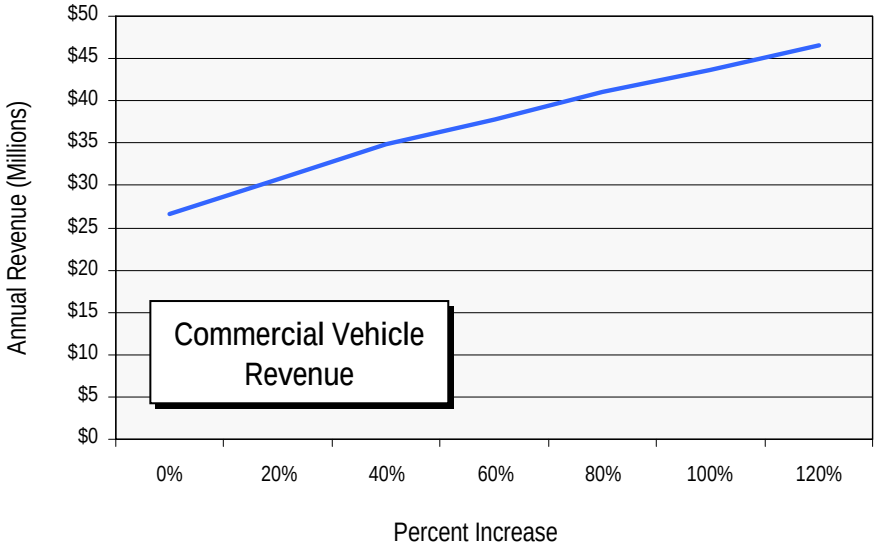

Notes:

1. Includes PACC transactions and revenue and assumes PACC fees, PACC transactions, and PACC revenues remain constant under all scenarios.
2. Sensitivity values are based on unrounded toll rates. Actual transaction and revenue will be slightly different as a result of the need to round cash tolls to the nearest $0.25 ($0.05 at the North Beckley Ramp Plaza) and due to diversion from cash to E-ZPass and PACC.

# ESTIMATED TOLL TRANSACTION SENSITIVITY
# WEST VIRGINIA TURNPIKE




Notes:

1. Includes PACC transactions and revenue and assumes PACC fees, PACC transactions, and PACC revenues remain constant under all scenarios.
2. Sensitivity values are based on unrounded toll rates. Actual transaction and revenue will be slightly different as a result of the need to round cash tolls to the nearest $0.25 ($0.05 at the North Beckley Ramp Plaza) and due to diversion from cash to E-ZPass and PACC.

## ESTIMATED TOLL REVENUE SENSITIVITY
## WEST VIRGINIA TURNPIKE

**Table 4-1**
**Toll Sensitivity**
**West Virginia Parkways, Economic Development and Tourism Authority**

| Percent Increase Over Current Toll Rate | Annual Traffic (1) (Thousands) | | | | | | Annual Revenue (1) (Thousands) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Percent Change from Base | | | | | | Percent Change from Base | | |
| | Passenger Vehicles | Commercial Vehicles | Total Vehicles | Passenger Vehicles | Commercial Vehicles | Total Vehicles | Passenger Vehicles | Commercial Vehicles | Total Vehicles | Passenger Vehicles | Commercial Vehicles | Total Vehicles |
| 0 | 26,546 | 7,069 | 33,615 | | | | $26,656 | $26,613 | $53,268 | | | |
| 20 | 25,775 | 6,831 | 32,606 | -2.9 | -3.4 | -3.0 | 30,745 | 30,840 | 61,585 | +15.3 | +15.9 | +15.6 |
| 40 | 25,010 | 6,616 | 31,626 | -5.8 | -6.4 | -5.9 | 34,471 | 34,824 | 69,296 | +29.3 | +30.9 | +30.1 |
| 60 | 24,158 | 6,290 | 30,447 | -9.0 | -11.0 | -9.4 | 37,730 | 37,788 | 75,518 | +41.5 | +42.0 | +41.8 |
| 80 | 23,442 | 6,085 | 29,527 | -11.7 | -13.9 | -12.2 | 40,815 | 41,081 | 81,896 | +53.1 | +54.4 | +53.7 |
| 100 | 22,742 | 5,823 | 28,565 | -14.3 | -17.6 | -15.0 | 43,663 | 43,625 | 87,289 | +63.8 | +63.9 | +63.9 |
| 120 | 21,995 | 5,663 | 27,657 | -17.1 | -19.9 | -17.7 | 45,999 | 46,639 | 92,638 | +72.6 | +75.3 | +73.9 |

(1) Includes PACC transactions and revenue and assumes PACC fees, PACC transactions, and PACC revenues remain constant under all scenarios.
(2) Sensitivity values are based on unrounded toll rates. Actual transactions and revenue will be different as a result of the need to round cash tolls to the nearest $0.25 ($0.05 at the North Beckley Ramp Plaza) and due to diversion from cash to E-ZPass and PACC.

## ESTIMATED TRAFFIC AND REVENUE

A range of traffic and revenue forecasts were prepared based on the sensitivities indicated in the previous section. Table 4-2 shows the toll rate assumptions for each scenario. A Base Case forecast was developed that assumed the current toll rate structure remained. In addition, 10 toll increase scenarios were developed that included variations on the amount of a discount that would be provided to West Virginia E-ZPass customers. For all scenarios, PACC fees were assumed to remain unchanged.

**Table 4-2**
**Toll Scenarios Analyzed**
**West Virginia Parkways, Economic Development and Tourism Authority**

| Scenario | Percent Toll Increase | West Virginia E-ZPass Percent Discount |
|---|---|---|
| Base | 0 | 0 |
| A | 20 Cars / 30 Trucks | 10 |
| B | 40 | 0 |
| B1 | 40 | 15 |
| B2 | 40 | 25 |
| C | 60 | 0 |
| C1 | 60 | 15 |
| C2 | 60 | 25 |
| D | 80 | 0 |
| D1 | 80 | 15 |
| D2 | 80 | 25 |

No increase in PACC fees for all scenarios.

Table 4-3 displays the 2-axle passenger vehicle and 5-axle commercial vehicle toll rates for the current toll rate structure and for each of the scenarios evaluated. Cash rates were rounded to the nearest $0.25 at the mainline toll plazas and to the nearest $0.05 at the Beckley ramp plaza. Any discount for West Virginia E-ZPass customers was applied to the rounded toll rate and then rounded to the nearest penny. For example, under Scenario A, a 2-axle passenger vehicle paying with cash or using a non-West Virginia E-ZPass transponder would see their toll rate increase from $1.25 to $1.50 at each of the mainline plazas. A 10 percent toll rate discount for West Virginia E-ZPass customers would result in their toll rate increasing from $1.25 to $1.35, which is an 8 percent increase over their existing toll rate. PACC fees were not assumed to increase for any of the scenarios.

The 5-axle commercial vehicle rate under Scenario A would increase from the current $4.25 to $5.50, a 29 percent increase. Commercial traffic with a West Virginia E-ZPass transponder would receive a 10 percent discount, resulting in a toll of $4.95. Each toll increase scenario includes an assumption with regard to the amount of current cash and non-West Virginia E-ZPass customers that would shift into the PACC/E-ZPass programs. This shift assumption is reflective of newly created West Virginia E-ZPass discounts, and of the increasing price differential between the PACC program and paying cash for each transaction, which reduces the number of trips needed to "break even," thereby making the PACC program more desirable for those who currently do not participate.

### Base Case Scenario

There is significant uncertainty that currently exists with respect to the severity and length of the current U.S. and global recession. Predicting the end of the recession and its effect on the performance of the Turnpike is challenging, given the unique nature of the current economic downturn. Current opinion suggests this recession may conclude by the end of calendar year 2009. Also in question is the type and duration of recovery that will be experienced by the U.S. and more importantly, by the Turnpike, West Virginia, and the surrounding states. In the short term, we expect economic conditions during the rest of calendar year 2009 to remain weak, with a stabilizing and initial recovery occurring during calendar year 2010.

In estimating transactions and revenue for the remaining months of FY 2009, we reviewed the latest monthly transaction data through March 25, 2009. Beginning in December of 2008, passenger vehicle transactions have shown positive growth as compared to those same months of the prior year. For the remainder of FY 2009, we anticipate this trend to continue, particularly since the spring and early summer of calendar year

**Table 4-3**
**Toll Schedules for Proposed Toll Increase Scenarios**
**Passenger Cars and 5-axle Trucks**
**West Virginia Turnpike -- Mainline Plazas and North Beckley Ramp Plaza**

**Mainline Plazas**

| Toll Increase Scenarios | | | Class 1 (2-axle Car) | | | | Class 8 (5-axle Truck) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Scenario | Nominal Base Toll Increase | WV E-ZPass Discount | Base Toll | Percent Increase | WV E-ZPass | Percent Increase | Base Toll | Percent Increase | WV E-ZPass | Percent Increase |
| Base | 0% | No Discount | $1.25 | 0 | $1.25 | 0 | $4.25 | 0 | $4.25 | 0 |
| A | 20% Cars / 30% Trucks | 10% | 1.50 | 20 | 1.35 | 8 | 5.50 | 29 | 4.95 | 16 |
| B | 40% | No Discount | 1.75 | 40 | 1.75 | 40 | 6.00 | 41 | 6.00 | 41 |
| B1 | 40% | 15% | 1.75 | 40 | 1.49 | 19 | 6.00 | 41 | 5.10 | 20 |
| B2 | 40% | 25% | 1.75 | 40 | 1.31 | 5 | 6.00 | 41 | 4.50 | 6 |
| C | 60% | No Discount | 2.00 | 60 | 2.00 | 60 | 6.75 | 59 | 6.75 | 59 |
| C1 | 60% | 15% | 2.00 | 60 | 1.70 | 36 | 6.75 | 59 | 5.74 | 35 |
| C2 | 60% | 25% | 2.00 | 60 | 1.50 | 20 | 6.75 | 59 | 5.06 | 19 |
| D | 80% | No Discount | 2.25 | 80 | 2.25 | 80 | 7.75 | 82 | 7.75 | 82 |
| D1 | 80% | 15% | 2.25 | 80 | 1.91 | 53 | 7.75 | 82 | 6.59 | 55 |
| D2 | 80% | 25% | 2.25 | 80 | 1.69 | 35 | 7.75 | 82 | 5.81 | 37 |

**North Beckley Ramp Plaza**

| Toll Increase Scenarios | | | Class 1 (2-axle Car) | | | | Class 8 (5-axle Truck) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Scenario | Nominal Base Toll Increase | WV E-ZPass Discount | Base Toll | Percent Increase | WV E-ZPass | Percent Increase | Base Toll | Percent Increase | WV E-ZPass | Percent Increase |
| Base | 0% | No Discount | $0.25 | 0 | $0.25 | 0 | $1.00 | 0 | $1.00 | 0 |
| A | 20% Cars / 30% Trucks | 10% | 0.30 | 20 | 0.27 | 8 | 1.30 | 30 | 1.17 | 17 |
| B | 40% | No Discount | 0.35 | 40 | 0.35 | 40 | 1.40 | 40 | 1.40 | 40 |
| B1 | 40% | 15% | 0.35 | 40 | 0.30 | 20 | 1.40 | 40 | 1.19 | 19 |
| B2 | 40% | 25% | 0.35 | 40 | 0.26 | 4 | 1.40 | 40 | 1.05 | 5 |
| C | 60% | No Discount | 0.40 | 60 | 0.40 | 60 | 1.60 | 60 | 1.60 | 60 |
| C1 | 60% | 15% | 0.40 | 60 | 0.34 | 36 | 1.60 | 60 | 1.36 | 36 |
| C2 | 60% | 25% | 0.40 | 60 | 0.30 | 20 | 1.60 | 60 | 1.20 | 20 |
| D | 80% | No Discount | 0.45 | 80 | 0.45 | 80 | 1.80 | 80 | 1.80 | 80 |
| D1 | 80% | 15% | 0.45 | 80 | 0.38 | 52 | 1.80 | 80 | 1.53 | 53 |
| D2 | 80% | 25% | 0.45 | 80 | 0.34 | 36 | 1.80 | 80 | 1.35 | 35 |

Note: Base tolls in each scenario are rounded to the nearest $0.25 at each mainline plaza, and to the nearest $0.05 at the North Beckley ramp plaza. WV E-ZPass tolls are rounded to the nearest $0.01.

2008 were heavily impacted by the surge in fuel prices. This surge in fuel price had a significant impact on VMT nationwide and the Turnpike. Significant increases in travel costs will typically impact non-discretionary travel the most. Overall, we estimate passenger car transactions to decrease by 0.9 percent for FY 2009.

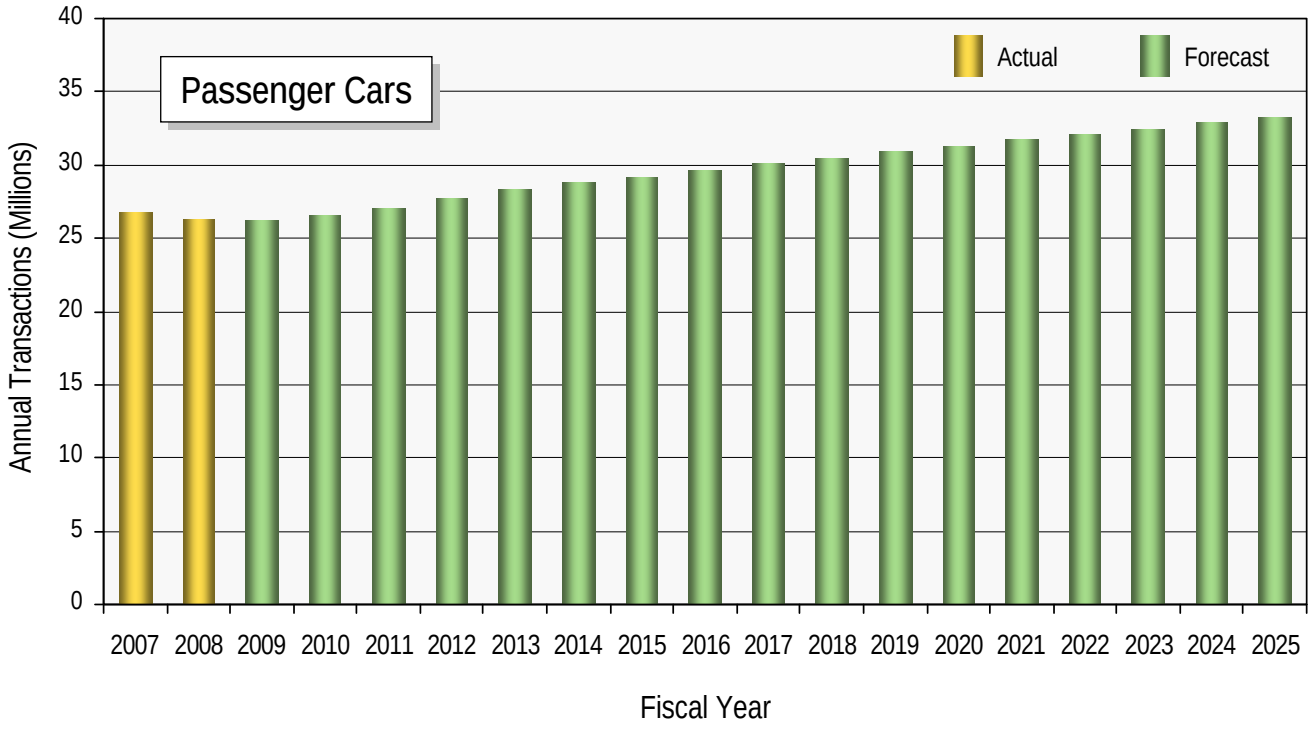
In the second half of FY 2009, commercial vehicle transactions on the Turnpike have shown a significant increase in the negative trends since January, with reductions of 19 percent and 13 percent in January and February of 2009 at the mainline plazas. March data indicates a continuation of this trend. Clearly the contraction of the economy and the impact on demand for goods has resulted in a significant reduction in commercial traffic on the Turnpike. We assume this trend will continue through the remainder of FY 2009 and into the first half of FY 2010, albeit at a less severe rate. Overall, we estimate commercial vehicle transactions to be down by 11 percent for FY 2009.

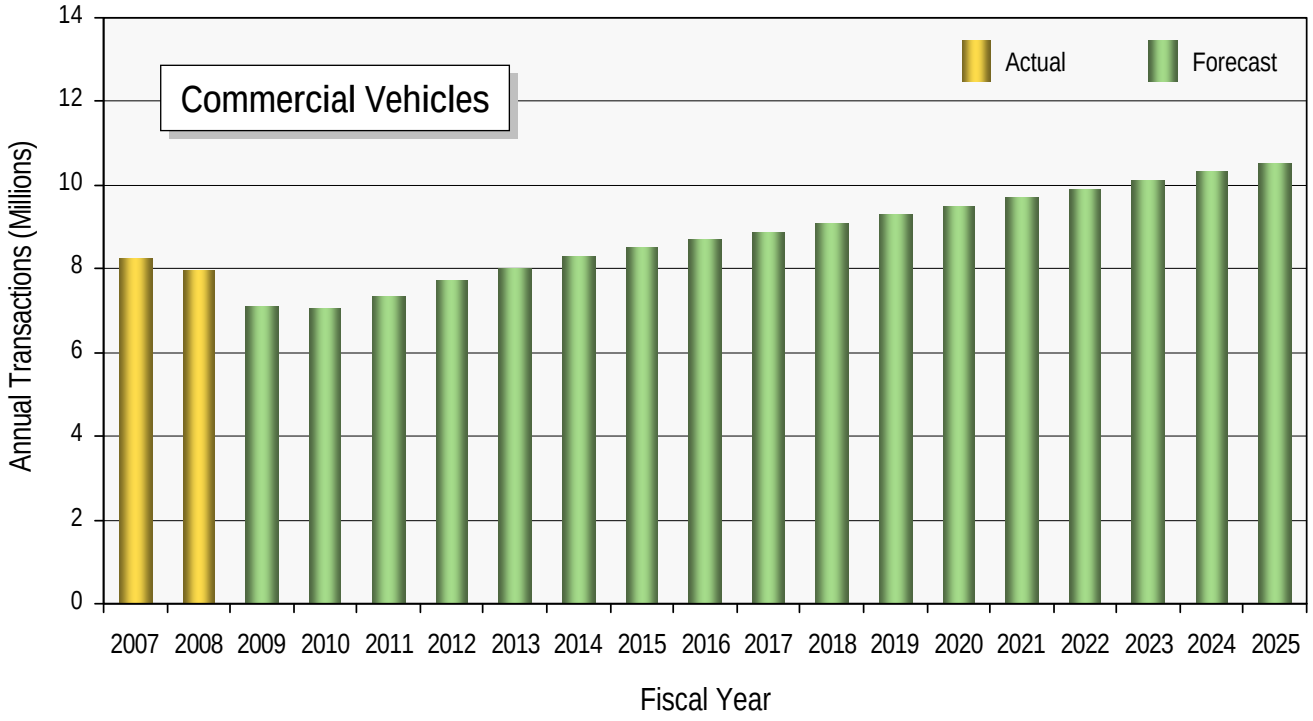
In total, we estimate total transactions and toll revenue to be 33.3 million and $53.0 million, respectively, for FY 2009. This is a decline of 3.3 percent in transactions and 5.7 percent in toll revenue from FY 2008 levels.

We estimate that overall recovery will begin to occur during the second half of FY 2010 and estimate toll revenue will be 0.5 percent higher than FY 2009. We have assumed a growth schedule for FY 2011 through FY 2014 that reflects a period of recovery in transaction and revenue growth, particularly for commercial vehicles, since they have been negatively impacted the most by the current recession. Beyond FY 2014 we revert to previous long-term growth forecasts consistent with those in recent studies.

The Base Case forecast of annual transactions is displayed in Figure 4.3. As shown, we expect passenger vehicle transactions to be slightly lower in FY 2009 as compared to FY 2008. We estimate that a positive trend will emerge in passenger vehicle transactions for FY 2010. The long-term forecasted average growth rate from FY 2009 through FY 2025 for passenger vehicle transactions is 1.5 percent per year.

Commercial vehicle transactions are estimated to decline by more than 11 percent in FY 2009, as compared with FY 2008. We estimate commercial transactions will decline slightly (0.5 percent) for FY 2010, as compared with FY 2009. A positive trend and recovery in commercial vehicle transactions is estimated to occur in FY 2011, with estimated transactions by FY 2014 reaching levels experienced in FY 2007. The long-term forecasted average growth rate from FY 2009 through FY 2025 for


Passenger Cars
Actual
Forecast
Annual Transactions (Millions)
0
5
10
15
20
25
30
35
40
2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025
Fiscal Year


Commercial Vehicles
Actual
Forecast
Annual Transactions (Millions)
0
2
4
6
8
10
12
14
2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025
Fiscal Year

commercial vehicle transactions is 2.5 percent per year, reflecting the assumed recovery that is expected to occur in commercial vehicle traffic and the fact that commercial vehicle traffic on the Turnpike has historically grown at a higher rate than passenger vehicles.

### TOLL INCREASE SCENARIOS

Ten scenarios were tested based on across-the-board increases in cash and E-ZPass toll rates and varying discounts for West Virginia E-ZPass customers. We have assumed that any toll increase would be implemented on July 1, 2009, the beginning of the FY 2010. Table 4-4 presents our FY 2010 estimates of transactions and revenue for the Base Case and each toll scenario. Each toll scenario is compared against the Base Case level of transactions and revenue to demonstrate the loss of traffic and gain in revenue that would be expected for each toll increase scenario. The PACC rates, which allow unlimited travel for various plazas, were not changed. Under the toll increase scenarios, it was further assumed that a percentage of cash and non-West Virginia E-ZPass customers would switch to West Virginia E-ZPass or to the PACC program to take advantage of discounted rates. Our assumed shifts are shown in the column identified as "Shift to Electronic Toll Collection (ETC)". We assume an increasing shift as the differentials between the base toll rate and the PACC and West Virginia E-ZPass rates increase.

Tables 4-5 and 4-6 present the long-term forecasts of transactions and revenue, respectively, for the Base Case and each toll increase scenario. Toll transactions would be highest under the Base Case forecast, reaching an estimated 43.8 million transactions by 2025, and the lowest under Scenario D, reaching an estimated 38.5 million transactions by 2025. Scenario D has the highest toll increase of any of the scenarios presented and also provides no discount for E-ZPass customers. The inverse relationship holds for revenue potential of the scenarios evaluated, where the Base Case would result in the lowest revenue levels, reaching an estimated $73.2 million by 2025, and the highest levels under Scenario D, reaching an estimated $112.0 million by 2025. For any toll increase, a discount policy would be required for West Virginia E-ZPass customers. Toll increase scenarios showing a no discount policy where evaluated in order to demonstrate the potential revenue loss of such a program.

Figure 4-4 illustrates the results graphically for the Base Case, Scenario A, the "no discount" scenarios (B,C,D), and for the 25 percent discount scenarios (B2,C2,D2). FY 2010 shows the decrease in transactions and the increase in toll revenue that would be expected under each of the toll increase scenarios as compared to the Base Case, before returning to the same long-term growth rate trend assumed in the Base Case forecast.

**Table 4-4**
**Summary of FY 2010 Forecast**
**West Virginia Turnpike**

| Scenario | Toll Increase Scenarios: Nominal Base Toll Percent Increase | Toll Increase Scenarios: WV E-ZPass Percent Discount | Toll Increase Scenarios: Percent Shift to Electronic Toll Collection (ETC) (1) | Transaction Summary (000s): TOTAL Transactions | Transaction Summary (000s): Net Change | Transaction Summary (000s): Percent Change | Revenue Summary ($000s): TOTAL Revenue | Revenue Summary ($000s): Net Change | Revenue Summary ($000s): Percent Change |
|---|---|---|---|---|---|---|---|---|---|
| Base | 0 | No Discount | - | 33,615 | 0 | 0 | 53,268 | 0 | 0 |
| A | 20 Cars / 30 Trucks | 10 | 4.0 | 32,555 | -1,060 | -3 | 62,739 | 9,471 | 18 |
| B | 40 | No Discount | 5.0 | 31,635 | -1,981 | -6 | 69,149 | 15,880 | 30 |
| B1 | 40 | 15 | 5.5 | 31,700 | -1,915 | -6 | 68,206 | 14,938 | 28 |
| B2 | 40 | 25 | 6.0 | 31,748 | -1,867 | -6 | 67,513 | 14,244 | 27 |
| C | 60 | No Discount | 7.5 | 30,519 | -3,097 | -9 | 74,751 | 21,482 | 40 |
| C1 | 60 | 15 | 8.0 | 30,619 | -2,996 | -9 | 73,853 | 20,585 | 39 |
| C2 | 60 | 25 | 8.5 | 30,674 | -2,941 | -9 | 73,072 | 19,804 | 37 |
| D | 80 | No Discount | 10.0 | 29,598 | -4,017 | -12 | 81,355 | 28,086 | 53 |
| D1 | 80 | 15 | 10.5 | 29,695 | -3,921 | -12 | 80,288 | 27,019 | 51 |
| D2 | 80 | 25 | 11.0 | 29,777 | -3,838 | -11 | 79,534 | 26,266 | 49 |

(1) Shift to ETC includes current cash and non-West Virginia E-ZPass customers that are expected to shift to West Virginia E-Zpass or the PACC program as a result of the toll increases and related discount programs.

**Table 4-5**
**Annual Transactions Forecast, FY 2009 through FY 2025**
**West Virginia Parkways, Economic Development and Tourism Authority**

**Thousands of Transactions**

| Scenario | Base | A | B | B1 | B2 | C | C1 | C2 | D | D1 | D2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nominal Base Toll Increase | 0% | 20% Cars / 30% Trucks | 40% | 40% | 40% | 60% | 60% | 60% | 80% | 80% | 80% |
| WV E-ZPass Discount | No Discount | 10% | No Discount | 15% | 25% | No Discount | 15% | 25% | No Discount | 15% | 25% |
| Shift to Electronic Toll Collection (ETC) (1) | - | 4.0% | 5.0% | 5.5% | 6.0% | 7.5% | 8.0% | 8.5% | 10.0% | 10.5% | 11.0% |
| FY 2009 | 33,259 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| FY 2010 | 33,615 | 32,555 | 31,635 | 31,700 | 31,748 | 30,519 | 30,619 | 30,674 | 29,598 | 29,695 | 29,777 |
| FY 2011 | 34,352 | 33,267 | 32,327 | 32,394 | 32,444 | 31,185 | 31,289 | 31,345 | 30,243 | 30,343 | 30,428 |
| FY 2012 | 35,407 | 34,286 | 33,318 | 33,388 | 33,440 | 32,139 | 32,247 | 32,306 | 31,167 | 31,270 | 31,359 |
| FY 2013 | 36,303 | 35,152 | 34,159 | 34,232 | 34,286 | 32,949 | 33,062 | 33,122 | 31,951 | 32,058 | 32,150 |
| FY 2014 | 37,064 | 35,887 | 34,874 | 34,949 | 35,004 | 33,637 | 33,753 | 33,815 | 32,617 | 32,727 | 32,822 |
| FY 2015 | 37,678 | 36,480 | 35,451 | 35,527 | 35,583 | 34,193 | 34,311 | 34,375 | 33,155 | 33,268 | 33,364 |
| FY 2016 | 38,302 | 37,084 | 36,038 | 36,116 | 36,173 | 34,758 | 34,879 | 34,944 | 33,702 | 33,817 | 33,916 |
| FY 2017 | 38,938 | 37,698 | 36,635 | 36,714 | 36,773 | 35,333 | 35,456 | 35,523 | 34,259 | 34,377 | 34,477 |
| FY 2018 | 39,546 | 38,286 | 37,206 | 37,287 | 37,346 | 35,883 | 36,009 | 36,076 | 34,792 | 34,911 | 35,014 |
| FY 2019 | 40,163 | 38,883 | 37,786 | 37,869 | 37,929 | 36,442 | 36,570 | 36,639 | 35,333 | 35,455 | 35,560 |
| FY 2020 | 40,791 | 39,489 | 38,376 | 38,460 | 38,522 | 37,010 | 37,141 | 37,211 | 35,883 | 36,007 | 36,114 |
| FY 2021 | 41,389 | 40,067 | 38,938 | 39,023 | 39,086 | 37,551 | 37,684 | 37,756 | 36,407 | 36,533 | 36,642 |
| FY 2022 | 41,996 | 40,654 | 39,508 | 39,595 | 39,659 | 38,100 | 38,236 | 38,308 | 36,938 | 37,067 | 37,178 |
| FY 2023 | 42,613 | 41,249 | 40,087 | 40,176 | 40,241 | 38,658 | 38,796 | 38,870 | 37,478 | 37,609 | 37,722 |
| FY 2024 | 43,210 | 41,826 | 40,648 | 40,738 | 40,805 | 39,198 | 39,338 | 39,414 | 38,001 | 38,134 | 38,249 |
| FY 2025 | 43,816 | 42,412 | 41,217 | 41,309 | 41,377 | 39,746 | 39,889 | 39,966 | 38,531 | 38,667 | 38,784 |

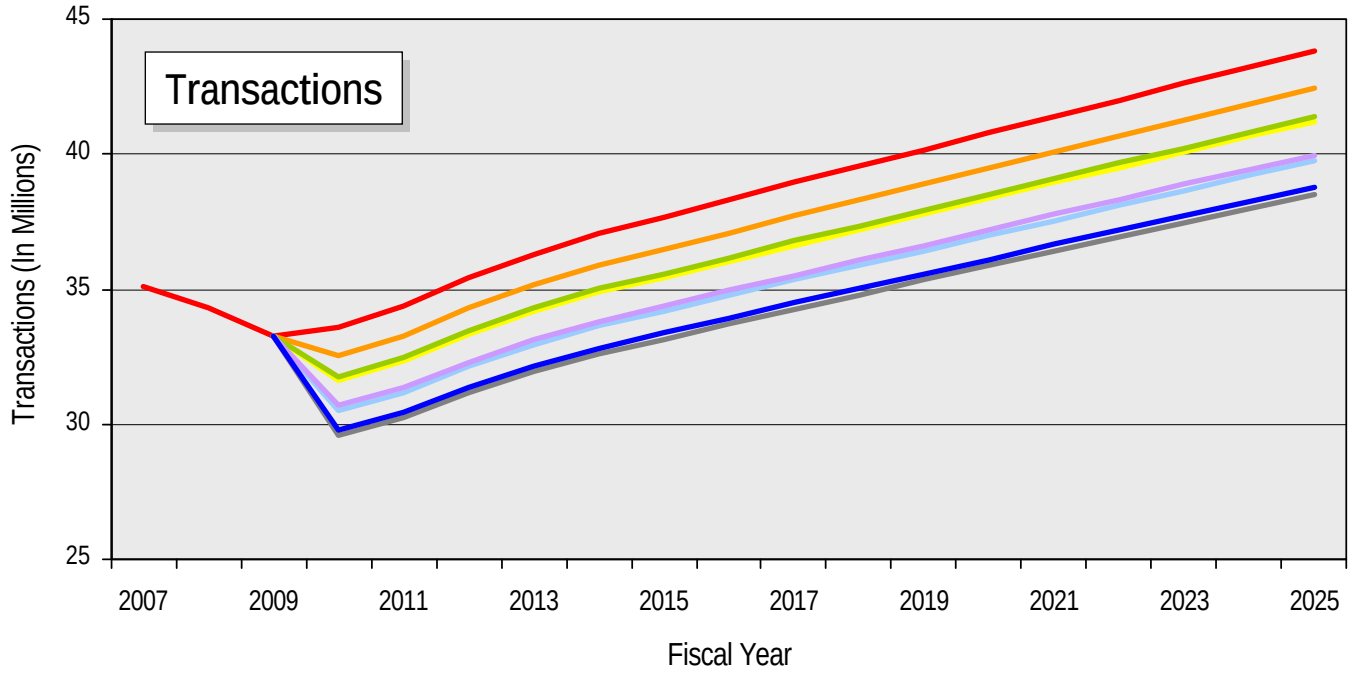
(1) Shift to ETC includes current cash and non-West Virginia E-ZPass customers that are expected to shift to West Virginia E-Zpass or the PACC program as a result of the toll increases and related discount programs.

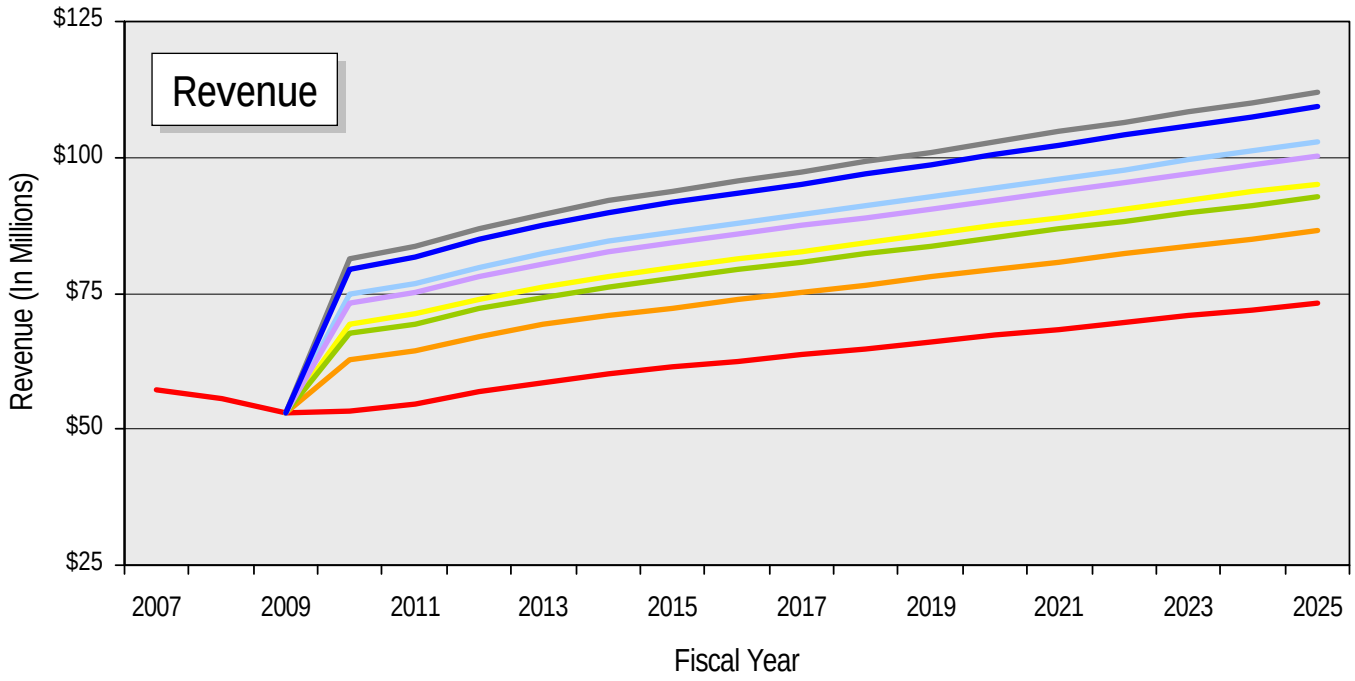
**Table 4-6**
**Annual Revenue Forecast, FY 2009 through FY 2025**
**West Virginia Parkways, Economic Development and Tourism Authority**

**Thousands of Dollars**

| Scenario | Base | A | B | B1 | B2 | C | C1 | C2 | D | D1 | D2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nominal Base Toll Increase | 0% | 20% Cars / 30% Trucks | 40% | 40% | 40% | 60% | 60% | 60% | 80% | 80% | 80% |
| WV E-ZPass Discount | No Discount | 10% | No Discount | 15% | 25% | No Discount | 15% | 25% | No Discount | 15% | 25% |
| Shift to Electronic Toll Collection (ETC) (1) | - | 4.0% | 5.0% | 5.5% | 6.0% | 7.5% | 8.0% | 8.5% | 10.0% | 10.5% | 11.0% |
| FY 2009 | $53,008 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| FY 2010 | 53,268 | $62,739 | $69,149 | $68,206 | $67,513 | $74,751 | $73,853 | $73,072 | $81,355 | $80,288 | $79,534 |
| FY 2011 | 54,798 | 64,563 | 71,146 | 70,169 | 69,450 | 76,904 | 75,974 | 75,165 | 83,710 | 82,604 | 81,823 |
| FY 2012 | 56,887 | 67,047 | 73,870 | 72,847 | 72,095 | 79,843 | 78,870 | 78,023 | 86,921 | 85,764 | 84,947 |
| FY 2013 | 58,653 | 69,146 | 76,172 | 75,111 | 74,331 | 82,327 | 81,318 | 80,439 | 89,634 | 88,434 | 87,587 |
| FY 2014 | 60,203 | 70,993 | 78,196 | 77,099 | 76,294 | 84,509 | 83,467 | 82,560 | 92,020 | 90,780 | 89,906 |
| FY 2015 | 61,358 | 72,363 | 79,700 | 78,579 | 77,757 | 86,132 | 85,068 | 84,141 | 93,791 | 92,525 | 91,632 |
| FY 2016 | 62,536 | 73,760 | 81,234 | 80,089 | 79,248 | 87,788 | 86,700 | 85,753 | 95,599 | 94,305 | 93,393 |
| FY 2017 | 63,737 | 75,186 | 82,799 | 81,628 | 80,770 | 89,477 | 88,365 | 87,398 | 97,443 | 96,120 | 95,188 |
| FY 2018 | 64,898 | 76,565 | 84,312 | 83,118 | 82,241 | 91,110 | 89,976 | 88,988 | 99,226 | 97,877 | 96,925 |
| FY 2019 | 66,082 | 77,971 | 85,855 | 84,635 | 83,740 | 92,775 | 91,617 | 90,609 | 101,044 | 99,666 | 98,695 |
| FY 2020 | 67,289 | 79,404 | 87,428 | 86,182 | 85,269 | 94,472 | 93,290 | 92,260 | 102,897 | 101,490 | 100,499 |
| FY 2021 | 68,452 | 80,786 | 88,943 | 87,673 | 86,741 | 96,107 | 94,902 | 93,852 | 104,683 | 103,248 | 102,238 |
| FY 2022 | 69,635 | 82,193 | 90,486 | 89,191 | 88,240 | 97,772 | 96,543 | 95,472 | 106,502 | 105,038 | 104,008 |
| FY 2023 | 70,841 | 83,625 | 92,058 | 90,736 | 89,767 | 99,468 | 98,214 | 97,121 | 108,354 | 106,861 | 105,810 |
| FY 2024 | 72,011 | 85,016 | 93,584 | 92,237 | 91,249 | 101,114 | 99,836 | 98,723 | 110,152 | 108,631 | 107,560 |
| FY 2025 | 73,202 | 86,432 | 95,136 | 93,763 | 92,757 | 102,789 | 101,487 | 100,353 | 111,982 | 110,432 | 109,341 |

(1) Shift to ETC includes current cash and non-West Virginia E-ZPass customers that are expected to shift to West Virginia E-Zpass or the PACC program as a result of the toll increases and related discount programs.




Base Case - Current toll schedule
Scenario A - 20% PC/30% CV increase, 10% WV E-ZPass discount
Scenario B - 40% increase
Scenario B2 - 40% increase, 25% WV E-ZPass discount
Scenario C - 60% increase
Scenario C2 - 60% increase, 25% WV E-ZPass discount
Scenario D - 80% increase
Scenario D2 - 80% increase, 25% WV E-ZPass discount

WilburSmith ASSOCIATES

## TRANSACTIONS AND REVENUE FORECAST SUMMARY

FIGURE 4-4

### FINANCIAL ASSESSMENT OF TOLLING ALTERNATIVES

Estimates of yearly operating expenses, renewal and replacement requirements (R&R), and essential deferred maintenance and capital needs were provided by the Authority's General Engineering Consultant. These revenue needs were used with the annual debt service requirements from the Official Statement dated June 25, 2008 provided by the Authority to assess how each toll scenario's projected annual revenue stream would perform against the total needs of the Authority. A summary of the needs is shown in Table 4-7.

Debt coverage assessments were performed for each scenario and are shown in Appendix A of this report. A coverage ratio test was performed for three conditions; one which only considers the debt service obligations after operating expenses (ratio test 1), a second which considers debt service requirements and renewal and replacement requirements (ratio test 2), and a third that also includes the essential deferred maintenance and capital needs (ratio test 3). Based on this debt service and needs coverage assessment, only the toll increase Scenarios C, C1, C2 and D, D1, D2 would provide sufficient revenue to meet the total annual needs (ratio test 3) of the Authority. The Base Case scenario and Scenarios A, B, B1, and B2 would not provide sufficient annual toll revenue to meet the total needs of the Authority. The Base Case scenario would also fail to meet the requirements of ratio test 2, which requires a ratio of 1.0 or greater.

Table 4-8 provides a summary comparison of the toll revenue and total revenue needs for each scenario. Net Turnpike revenue for each scenario is shown which represents total gross toll revenue minus operating expenses. Operating expenses are the same for each toll scenario. Also shown are the total combined requirements of debt service, R&R, and essential deferred maintenance and capital needs for the Base Case and toll increase scenarios. Net Turnpike revenue values shown in red text and italicized indicate insufficient revenues to meet total debt service, R&R, and essential deferred maintenance and capital needs. Scenarios (C, C1, C2, D, D1, & D2) which display net Turnpike revenue in unitalicized black text would be expected to meet the total revenue needs of the Turnpike.

Among those scenarios (Scenarios C, C1, C2, D, D1, and D2) that are estimated to produce enough annual revenue to meet the total needs of the Authority, Scenario C2 provides for the smallest toll increase in combination with the largest toll discount for West Virginia EZ-Pass customers. Table 4-9 presents the full toll schedule (for all vehicle classes) that would result under Scenario C2.

**Table 4-7**
**Summary of Estimated Debt Service, Operating Expenses, Renewal and Replacement Requirements, and Essential Deferred Maintenance and Capital Needs**
**West Virginia Parkways, Economic Development and Tourism Authority**

**(Thousands)**

| | | | Base Case (No Toll Increase) | | Toll Increase Scenarios | |
|---|---|---|---|---|---|---|
| **Fiscal Year** | **Operating Expense (1)** | **Total Debt Service (2)** | Renewal and Replacement (R&R) Requirement (1) | Essential Deferred Maintenance and Capital Needs (1) (3) | Renewal and Replacement (R&R) Requirement (1) | Essential Deferred Maintenance and Capital Needs (1) |
| 2010 | $33,003 | $10,389 | $11,743 | - | $8,743 | $20,010 |
| 2011 | 33,885 | 10,720 | 13,796 | - | 8,040 | 21,960 |
| 2012 | 34,797 | 10,401 | 15,994 | - | 7,837 | 24,036 |
| 2013 | 35,740 | 10,808 | 19,775 | - | 7,859 | 24,523 |
| 2014 | 36,666 | 10,458 | 23,714 | - | 8,482 | 24,817 |
| 2015 | 37,726 | 10,717 | 27,225 | - | 9,156 | 24,562 |
| 2016 | 38,720 | 10,769 | 31,874 | - | 9,151 | 25,544 |
| 2017 | 39,851 | 10,677 | 35,670 | - | 9,133 | 26,566 |
| 2018 | 40,971 | 10,719 | 39,618 | - | 9,099 | 27,924 |
| 2019 | 42,129 | 10,739 | 43,724 | - | 9,052 | 28,439 |

(1) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(2) Debt Service from Official Statement dated June 25, 2008.
(3) Because there would be insufficient funds under the Base Case scenario to meet R&R requirements plus Operating Expenses and Debt Service, if there is no toll increase there would not be any funding for Essential Deferred Maintenance and Capital Needs. As a result, the R&R requirements would escalate significantly over time under the Base Case.

**Table 4-8**
**Summary of Revenue versus Needs, FY 2010 through FY 2019**
**West Virginia Parkways, Economic Development and Tourism Authority**

**(Thousands)**

| | **Base Case (No Toll Increase)** | | **Toll Increase Scenarios** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Net Turnpike Toll Revenue (3) | | | | | | | | |
| **Fiscal Year** | Debt Service, R&R, and Essential Deferred Maintenance and Capital Needs (1) (2) | Net Turnpike Toll Revenue (3) | Debt Service, R&R, and Essential Deferred Maintenance and Capital Needs (1) | Scenario A | Scenario B | Scenario B1 | Scenario B2 | Scenario C | Scenario C1 | **Scenario C2** | Scenario D | Scenario D1 | Scenario D2 |
| 2010 | $22,132 | *$20,265* | $39,142 | *$29,736* | *$36,146* | *$35,203* | *$34,510* | $41,748 | $40,850 | **$40,069** | $48,352 | $47,285 | $46,531 |
| 2011 | 24,516 | *20,913* | 40,720 | *30,678* | *37,261* | *36,284* | *35,565* | 43,019 | 42,089 | **41,280** | 49,825 | 48,719 | 47,938 |
| 2012 | 26,395 | *22,090* | 42,274 | *32,250* | *39,073* | *38,050* | *37,298* | 45,046 | 44,073 | **43,226** | 52,124 | 50,967 | 50,150 |
| 2013 | 30,583 | *22,913* | 43,190 | *33,406* | *40,432* | *39,371* | *38,591* | 46,587 | 45,578 | **44,699** | 53,894 | 52,694 | 51,847 |
| 2014 | 34,172 | *23,537* | 43,757 | *34,327* | *41,530* | *40,433* | *39,628* | 47,843 | 46,801 | **45,894** | 55,354 | 54,114 | 53,240 |
| 2015 | 37,942 | *23,632* | 44,435 | *34,637* | *41,974* | *40,853* | *40,031* | 48,406 | 47,342 | **46,415** | 56,065 | 54,799 | 53,906 |
| 2016 | 42,643 | *23,816* | 45,464 | *35,040* | *42,514* | *41,369* | *40,528* | 49,068 | 47,980 | **47,033** | 56,879 | 55,585 | 54,673 |
| 2017 | 46,347 | *23,886* | 46,376 | *35,335* | *42,948* | *41,777* | *40,919* | 49,626 | 48,514 | **47,547** | 57,592 | 56,269 | 55,337 |
| 2018 | 50,337 | *23,927* | 47,742 | *35,594* | *43,341* | *42,147* | *41,270* | 50,139 | 49,005 | **48,017** | 58,255 | 56,906 | 55,954 |
| 2019 | 54,463 | *23,953* | 48,230 | *35,842* | *43,726* | *42,506* | *41,611* | 50,646 | 49,488 | **48,480** | 58,915 | 57,537 | 56,566 |

NOTE: Revenue values shown in *red italics* indicate insufficient revenues to meet total Debt Service, R&R, and Essential Deferred Maintenance and Capital Needs for that year under that scenario.

(1) R&R and Essential Deferred Maintenance and Capital Needs estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009. Debt Service from the Official Statement dated June 25, 2008.

(2) Because there would be insufficient funds under the Base Case scenario to meet R&R requirements plus Operating Expenses and Debt Service, if there is no toll increase there would not be any funding for Essential Deferred Maintenance and Capital Needs. As a result, the R&R requirements would escalate significantly over time under the Base Case.

(3) Net Turnpike Toll Revenue represents total toll revenue less Operating Expenses. Operating Expenses are the same under the Base Case and all toll increase scenarios.

**Table 4-9**
**Full Toll Schedule Under Scenario C2**
**West Virginia Parkways, Economic Development and Tourism Authority**

| Toll Class | Vehicle Type | Number of Axles | Barriers A, B, C | | North Beckley | |
|---|---|---|---|---|---|---|
| | | | Base Toll | WV E-ZPass | Base Toll | WV E-ZPass |
| 1 | Passenger cars/pickup trucks (under 7' 6") | 2 | $2.00 | $1.50 | $0.40 | $0.30 |
| 2 | All Class 1 vehicles with a trailer (under 7' 6") | 3+ | 2.50 | 1.88 | 0.80 | 0.60 |
| 3 | Motorhomes Only (over 7' 6") | 2-3 | 2.50 | 1.88 | 0.80 | 0.60 |
| 4 | Class 3 vehicles with a trailer (over 7' 6") | 3+ | 3.25 | 2.44 | 1.20 | 0.90 |
| 5 | 2-axle trucks | 2 | 3.25 | 2.44 | 0.80 | 0.60 |
| 6 | 3-axle trucks | 3 | 4.50 | 3.38 | 1.20 | 0.90 |
| 7 | 4-axle trucks | 4 | 6.50 | 4.88 | 1.60 | 1.20 |
| 8 | 5-axle trucks | 5 | 6.75 | 5.06 | 1.60 | 1.20 |
| 9 | 6-or-more-axle trucks | 6+ | 9.50 | 7.13 | 2.40 | 1.80 |
| 10 | Oversize trucks | | 12.00 | 9.00 | 7.20 | 5.40 |
| | **PACC Rate (unchanged from existing rate)** Quarterly Cost* per Mainline Barrier (A, B, C) Passenger car only | | $25.00 | - | $5.00 | - |

* Subscribers receive a 5 percent discount per mainline barrier when paying for an entire year upfront.

## DISCLAIMER

Current accepted professional practices and procedures were used in the development of these traffic and revenue forecasts. However, as with any forecast of the future, it should be understood that there may be differences between forecasted and actual results caused by events and circumstances beyond the control of the forecasters. In formulating its forecasts, WSA has reasonably relied upon the accuracy and completeness of information provided (both written and oral) by the West Virginia Parkways, Economic Development and Tourism Authority and other state agencies. WSA also has relied upon the reasonable assurances of some independent parties and are not aware of any facts that would make such information misleading.

WSA has made qualitative judgments related to several key variables in the development and analysis of the traffic and revenue forecasts that must be considered as a whole; therefore selecting portions of any individual result without consideration of the intent of the whole may create a misleading or incomplete view of the results and the underling methodologies used to obtain the results. WSA gives no opinion as to the value or merit to partial information extracted from this report.

All estimates and projections reported herein are based on WSA' experience and judgment and on a review of information obtained from state agencies, including the West Virginia Parkways, Economic Development and Tourism Authority. These estimates and projections may not be indicative of actual or future values, and are therefore subject to substantial uncertainty. Future developments cannot be predicted with certainty, and may affect the estimates or projections expressed in this report, such that WSA does not specifically guarantee or warrant any estimate or projections contained within this report.

While WSA believes that some of the projections or other forward-looking statements contained within the report are based on reasonable assumptions as of the date in the report, such forward looking statements involve risks and uncertainties that may cause actual results to differ materially from the results predicted. Therefore, following the date of this report, WSA will take no responsibility or assume any obligation to advise of changes that may affect its assumptions contained within the report, as they pertain to socioeconomic and demographic forecasts, and/or potential improvements to the regional transportation network.

# Appendix A
# Financial Assessment of Tolling Alternatives

**Table A-1**
**Debt Service Coverage and Net Revenue Analysis Under Base Case (Existing Toll Rates)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) (6) | All Obligations Coverage Ratio Test (7) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $53,268 | $33,003 | $20,265 | $10,389 | 1.95 | $11,743 | 0.92 | - | 0.92 | -$1,867 |
| 2011 | 54,798 | 33,885 | 20,913 | 10,720 | 1.95 | 13,796 | 0.85 | - | 0.85 | -3,602 |
| 2012 | 56,887 | 34,797 | 22,090 | 10,401 | 2.12 | 15,994 | 0.84 | - | 0.84 | -4,304 |
| 2013 | 58,653 | 35,740 | 22,913 | 10,808 | 2.12 | 19,775 | 0.75 | - | 0.75 | -7,670 |
| 2014 | 60,203 | 36,666 | 23,537 | 10,458 | 2.25 | 23,714 | 0.69 | - | 0.69 | -10,635 |
| 2015 | 61,358 | 37,726 | 23,632 | 10,717 | 2.21 | 27,225 | 0.62 | - | 0.62 | -14,310 |
| 2016 | 62,536 | 38,720 | 23,816 | 10,769 | 2.21 | 31,874 | 0.56 | - | 0.56 | -18,827 |
| 2017 | 63,737 | 39,851 | 23,886 | 10,677 | 2.24 | 35,670 | 0.52 | - | 0.52 | -22,461 |
| 2018 | 64,898 | 40,971 | 23,927 | 10,719 | 2.23 | 39,618 | 0.48 | - | 0.48 | -26,409 |
| 2019 | 66,082 | 42,129 | 23,953 | 10,739 | 2.23 | 43,724 | 0.44 | - | 0.44 | -30,509 |

(1) Revenue is based on no toll increase.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) Because there would be insufficient funds under the Base Case scenario to meet R&R requirements plus Operating Expenses and Debt Service, if there is no toll increase there would not be any funding for Essential Deferred Maintenance and Capital Needs. As a result, the R&R requirements would escalate significantly over time under the Base Case.
(7) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-2**
**Debt Service Coverage and Net Revenue Analysis Under Scenario A (20 percent car increase / 30 percent truck increase, 10 percent discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $62,739 | $33,003 | $29,736 | $10,389 | 2.86 | $8,743 | 1.55 | $20,010 | 0.76 | -$9,406 |
| 2011 | 64,563 | 33,885 | 30,678 | 10,720 | 2.86 | 8,040 | 1.64 | 21,960 | 0.75 | -10,042 |
| 2012 | 67,047 | 34,797 | 32,250 | 10,401 | 3.10 | 7,837 | 1.77 | 24,036 | 0.76 | -10,024 |
| 2013 | 69,146 | 35,740 | 33,406 | 10,808 | 3.09 | 7,859 | 1.79 | 24,523 | 0.77 | -9,783 |
| 2014 | 70,993 | 36,666 | 34,327 | 10,458 | 3.28 | 8,482 | 1.81 | 24,817 | 0.78 | -9,430 |
| 2015 | 72,363 | 37,726 | 34,637 | 10,717 | 3.23 | 9,156 | 1.74 | 24,562 | 0.78 | -9,798 |
| 2016 | 73,760 | 38,720 | 35,040 | 10,769 | 3.25 | 9,151 | 1.76 | 25,544 | 0.77 | -10,423 |
| 2017 | 75,186 | 39,851 | 35,335 | 10,677 | 3.31 | 9,133 | 1.78 | 26,566 | 0.76 | -11,041 |
| 2018 | 76,565 | 40,971 | 35,594 | 10,719 | 3.32 | 9,099 | 1.80 | 27,924 | 0.75 | -12,147 |
| 2019 | 77,971 | 42,129 | 35,842 | 10,739 | 3.34 | 9,052 | 1.81 | 28,439 | 0.74 | -12,387 |

(1) Revenue is based on a 20 percent increase in passenger car tolls and a 30 percent increase in commercial vehicle tolls, with a 10 percent West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-3**
**Debt Service Coverage and Net Revenue Analysis Under Scenario B (40 percent increase, no discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $69,149 | $33,003 | $36,146 | $10,389 | 3.48 | $8,743 | 1.89 | $20,010 | 0.92 | -$2,997 |
| 2011 | 71,146 | 33,885 | 37,261 | 10,720 | 3.48 | 8,040 | 1.99 | 21,960 | 0.92 | -3,459 |
| 2012 | 73,870 | 34,797 | 39,073 | 10,401 | 3.76 | 7,837 | 2.14 | 24,036 | 0.92 | -3,200 |
| 2013 | 76,172 | 35,740 | 40,432 | 10,808 | 3.74 | 7,859 | 2.17 | 24,523 | 0.94 | -2,757 |
| 2014 | 78,196 | 36,666 | 41,530 | 10,458 | 3.97 | 8,482 | 2.19 | 24,817 | 0.95 | -2,227 |
| 2015 | 79,700 | 37,726 | 41,974 | 10,717 | 3.92 | 9,156 | 2.11 | 24,562 | 0.94 | -2,461 |
| 2016 | 81,234 | 38,720 | 42,514 | 10,769 | 3.95 | 9,151 | 2.13 | 25,544 | 0.94 | -2,950 |
| 2017 | 82,799 | 39,851 | 42,948 | 10,677 | 4.02 | 9,133 | 2.17 | 26,566 | 0.93 | -3,428 |
| 2018 | 84,312 | 40,971 | 43,341 | 10,719 | 4.04 | 9,099 | 2.19 | 27,924 | 0.91 | -4,400 |
| 2019 | 85,855 | 42,129 | 43,726 | 10,739 | 4.07 | 9,052 | 2.21 | 28,439 | 0.91 | -4,503 |

(1) Revenue is based on a 40 percent increase in passenger car tolls and no West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-4**
**Debt Service Coverage and Net Revenue Analysis Under Scenario B1 (40 percent increase, 15 percent WV E-ZPass discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $68,206 | $33,003 | $35,203 | $10,389 | 3.39 | $8,743 | 1.84 | $20,010 | 0.90 | -$3,939 |
| 2011 | 70,169 | 33,885 | 36,284 | 10,720 | 3.38 | 8,040 | 1.93 | 21,960 | 0.89 | -4,436 |
| 2012 | 72,847 | 34,797 | 38,050 | 10,401 | 3.66 | 7,837 | 2.09 | 24,036 | 0.90 | -4,224 |
| 2013 | 75,111 | 35,740 | 39,371 | 10,808 | 3.64 | 7,859 | 2.11 | 24,523 | 0.91 | -3,819 |
| 2014 | 77,099 | 36,666 | 40,433 | 10,458 | 3.87 | 8,482 | 2.13 | 24,817 | 0.92 | -3,324 |
| 2015 | 78,579 | 37,726 | 40,853 | 10,717 | 3.81 | 9,156 | 2.06 | 24,562 | 0.92 | -3,582 |
| 2016 | 80,089 | 38,720 | 41,369 | 10,769 | 3.84 | 9,151 | 2.08 | 25,544 | 0.91 | -4,095 |
| 2017 | 81,628 | 39,851 | 41,777 | 10,677 | 3.91 | 9,133 | 2.11 | 26,566 | 0.90 | -4,598 |
| 2018 | 83,118 | 40,971 | 42,147 | 10,719 | 3.93 | 9,099 | 2.13 | 27,924 | 0.88 | -5,595 |
| 2019 | 84,635 | 42,129 | 42,506 | 10,739 | 3.96 | 9,052 | 2.15 | 28,439 | 0.88 | -5,723 |

(1) Revenue is based on a 40 percent increase in passenger car tolls, with a 15 percent West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-5**
**Debt Service Coverage and Net Revenue Analysis Under Scenario B2 (40 percent increase, 25 percent WV E-ZPass discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $67,513 | $33,003 | $34,510 | $10,389 | 3.32 | $8,743 | 1.80 | $20,010 | 0.88 | -$4,633 |
| 2011 | 69,450 | 33,885 | 35,565 | 10,720 | 3.32 | 8,040 | 1.90 | 21,960 | 0.87 | -5,155 |
| 2012 | 72,095 | 34,797 | 37,298 | 10,401 | 3.59 | 7,837 | 2.05 | 24,036 | 0.88 | -4,975 |
| 2013 | 74,331 | 35,740 | 38,591 | 10,808 | 3.57 | 7,859 | 2.07 | 24,523 | 0.89 | -4,599 |
| 2014 | 76,294 | 36,666 | 39,628 | 10,458 | 3.79 | 8,482 | 2.09 | 24,817 | 0.91 | -4,129 |
| 2015 | 77,757 | 37,726 | 40,031 | 10,717 | 3.74 | 9,156 | 2.01 | 24,562 | 0.90 | -4,404 |
| 2016 | 79,248 | 38,720 | 40,528 | 10,769 | 3.76 | 9,151 | 2.03 | 25,544 | 0.89 | -4,935 |
| 2017 | 80,770 | 39,851 | 40,919 | 10,677 | 3.83 | 9,133 | 2.07 | 26,566 | 0.88 | -5,457 |
| 2018 | 82,241 | 40,971 | 41,270 | 10,719 | 3.85 | 9,099 | 2.08 | 27,924 | 0.86 | -6,472 |
| 2019 | 83,740 | 42,129 | 41,611 | 10,739 | 3.87 | 9,052 | 2.10 | 28,439 | 0.86 | -6,618 |

(1) Revenue is based on a 40 percent increase in passenger car tolls, with a 25 percent West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-6**
**Debt Service Coverage and Net Revenue Analysis Under Scenario C (60 percent increase, no discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $74,751 | $33,003 | $41,748 | $10,389 | 4.02 | $8,743 | 2.18 | $20,010 | 1.07 | $2,605 |
| 2011 | 76,904 | 33,885 | 43,019 | 10,720 | 4.01 | 8,040 | 2.29 | 21,960 | 1.06 | 2,299 |
| 2012 | 79,843 | 34,797 | 45,046 | 10,401 | 4.33 | 7,837 | 2.47 | 24,036 | 1.07 | 2,772 |
| 2013 | 82,327 | 35,740 | 46,587 | 10,808 | 4.31 | 7,859 | 2.50 | 24,523 | 1.08 | 3,397 |
| 2014 | 84,509 | 36,666 | 47,843 | 10,458 | 4.57 | 8,482 | 2.53 | 24,817 | 1.09 | 4,086 |
| 2015 | 86,132 | 37,726 | 48,406 | 10,717 | 4.52 | 9,156 | 2.44 | 24,562 | 1.09 | 3,971 |
| 2016 | 87,788 | 38,720 | 49,068 | 10,769 | 4.56 | 9,151 | 2.46 | 25,544 | 1.08 | 3,604 |
| 2017 | 89,477 | 39,851 | 49,626 | 10,677 | 4.65 | 9,133 | 2.51 | 26,566 | 1.07 | 3,250 |
| 2018 | 91,110 | 40,971 | 50,139 | 10,719 | 4.68 | 9,099 | 2.53 | 27,924 | 1.05 | 2,398 |
| 2019 | 92,775 | 42,129 | 50,646 | 10,739 | 4.72 | 9,052 | 2.56 | 28,439 | 1.05 | 2,417 |

(1) Revenue is based on a 60 percent increase in passenger car tolls and no West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-7**
**Debt Service Coverage and Net Revenue Analysis Under Scenario C1 (60 percent increase, 15 percent WV E-ZPass discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $73,853 | $33,003 | $40,850 | $10,389 | 3.93 | $8,743 | 2.14 | $20,010 | 1.04 | $1,708 |
| 2011 | 75,974 | 33,885 | 42,089 | 10,720 | 3.93 | 8,040 | 2.24 | 21,960 | 1.03 | 1,370 |
| 2012 | 78,870 | 34,797 | 44,073 | 10,401 | 4.24 | 7,837 | 2.42 | 24,036 | 1.04 | 1,799 |
| 2013 | 81,318 | 35,740 | 45,578 | 10,808 | 4.22 | 7,859 | 2.44 | 24,523 | 1.06 | 2,388 |
| 2014 | 83,467 | 36,666 | 46,801 | 10,458 | 4.48 | 8,482 | 2.47 | 24,817 | 1.07 | 3,044 |
| 2015 | 85,068 | 37,726 | 47,342 | 10,717 | 4.42 | 9,156 | 2.38 | 24,562 | 1.07 | 2,907 |
| 2016 | 86,700 | 38,720 | 47,980 | 10,769 | 4.46 | 9,151 | 2.41 | 25,544 | 1.06 | 2,517 |
| 2017 | 88,365 | 39,851 | 48,514 | 10,677 | 4.54 | 9,133 | 2.45 | 26,566 | 1.05 | 2,139 |
| 2018 | 89,976 | 40,971 | 49,005 | 10,719 | 4.57 | 9,099 | 2.47 | 27,924 | 1.03 | 1,263 |
| 2019 | 91,617 | 42,129 | 49,488 | 10,739 | 4.61 | 9,052 | 2.50 | 28,439 | 1.03 | 1,259 |

(1) Revenue is based on a 60 percent increase in passenger car tolls, with a 15 percent West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-8**
**Debt Service Coverage and Net Revenue Analysis Under Scenario C2 (60 percent increase, 25 percent WV E-ZPass discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $73,072 | $33,003 | $40,069 | $10,389 | 3.86 | $8,743 | 2.09 | $20,010 | 1.02 | $927 |
| 2011 | 75,165 | 33,885 | 41,280 | 10,720 | 3.85 | 8,040 | 2.20 | 21,960 | 1.01 | 560 |
| 2012 | 78,023 | 34,797 | 43,226 | 10,401 | 4.16 | 7,837 | 2.37 | 24,036 | 1.02 | 952 |
| 2013 | 80,439 | 35,740 | 44,699 | 10,808 | 4.14 | 7,859 | 2.39 | 24,523 | 1.03 | 1,509 |
| 2014 | 82,560 | 36,666 | 45,894 | 10,458 | 4.39 | 8,482 | 2.42 | 24,817 | 1.05 | 2,137 |
| 2015 | 84,141 | 37,726 | 46,415 | 10,717 | 4.33 | 9,156 | 2.34 | 24,562 | 1.04 | 1,980 |
| 2016 | 85,753 | 38,720 | 47,033 | 10,769 | 4.37 | 9,151 | 2.36 | 25,544 | 1.03 | 1,569 |
| 2017 | 87,398 | 39,851 | 47,547 | 10,677 | 4.45 | 9,133 | 2.40 | 26,566 | 1.03 | 1,171 |
| 2018 | 88,988 | 40,971 | 48,017 | 10,719 | 4.48 | 9,099 | 2.42 | 27,924 | 1.01 | 275 |
| 2019 | 90,609 | 42,129 | 48,480 | 10,739 | 4.51 | 9,052 | 2.45 | 28,439 | 1.01 | 250 |

(1) Revenue is based on a 60 percent increase in passenger car tolls, with a 25 percent West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-9**
**Debt Service Coverage and Net Revenue Analysis Under Scenario D (80 percent increase, no discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $81,355 | $33,003 | $48,352 | $10,389 | 4.65 | $8,743 | 2.53 | $20,010 | 1.24 | $9,209 |
| 2011 | 83,710 | 33,885 | 49,825 | 10,720 | 4.65 | 8,040 | 2.66 | 21,960 | 1.22 | 9,105 |
| 2012 | 86,921 | 34,797 | 52,124 | 10,401 | 5.01 | 7,837 | 2.86 | 24,036 | 1.23 | 9,850 |
| 2013 | 89,634 | 35,740 | 53,894 | 10,808 | 4.99 | 7,859 | 2.89 | 24,523 | 1.25 | 10,705 |
| 2014 | 92,020 | 36,666 | 55,354 | 10,458 | 5.29 | 8,482 | 2.92 | 24,817 | 1.27 | 11,597 |
| 2015 | 93,791 | 37,726 | 56,065 | 10,717 | 5.23 | 9,156 | 2.82 | 24,562 | 1.26 | 11,630 |
| 2016 | 95,599 | 38,720 | 56,879 | 10,769 | 5.28 | 9,151 | 2.86 | 25,544 | 1.25 | 11,415 |
| 2017 | 97,443 | 39,851 | 57,592 | 10,677 | 5.39 | 9,133 | 2.91 | 26,566 | 1.24 | 11,216 |
| 2018 | 99,226 | 40,971 | 58,255 | 10,719 | 5.44 | 9,099 | 2.94 | 27,924 | 1.22 | 10,514 |
| 2019 | 101,044 | 42,129 | 58,915 | 10,739 | 5.49 | 9,052 | 2.98 | 28,439 | 1.22 | 10,686 |

(1) Revenue is based on an 80 percent increase in passenger car tolls and no West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-10**
**Debt Service Coverage and Net Revenue Analysis Under Scenario D1 (80 percent increase, 15 percent WV E-ZPass discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $80,288 | $33,003 | $47,285 | $10,389 | 4.55 | $8,743 | 2.47 | $20,010 | 1.21 | $8,142 |
| 2011 | 82,604 | 33,885 | 48,719 | 10,720 | 4.54 | 8,040 | 2.60 | 21,960 | 1.20 | 7,999 |
| 2012 | 85,764 | 34,797 | 50,967 | 10,401 | 4.90 | 7,837 | 2.79 | 24,036 | 1.21 | 8,693 |
| 2013 | 88,434 | 35,740 | 52,694 | 10,808 | 4.88 | 7,859 | 2.82 | 24,523 | 1.22 | 9,504 |
| 2014 | 90,780 | 36,666 | 54,114 | 10,458 | 5.17 | 8,482 | 2.86 | 24,817 | 1.24 | 10,357 |
| 2015 | 92,525 | 37,726 | 54,799 | 10,717 | 5.11 | 9,156 | 2.76 | 24,562 | 1.23 | 10,364 |
| 2016 | 94,305 | 38,720 | 55,585 | 10,769 | 5.16 | 9,151 | 2.79 | 25,544 | 1.22 | 10,121 |
| 2017 | 96,120 | 39,851 | 56,269 | 10,677 | 5.27 | 9,133 | 2.84 | 26,566 | 1.21 | 9,894 |
| 2018 | 97,877 | 40,971 | 56,906 | 10,719 | 5.31 | 9,099 | 2.87 | 27,924 | 1.19 | 9,164 |
| 2019 | 99,666 | 42,129 | 57,537 | 10,739 | 5.36 | 9,052 | 2.91 | 28,439 | 1.19 | 9,308 |

(1) Revenue is based on an 80 percent increase in passenger car tolls, with a 15 percent West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).

**Table A-11**
**Debt Service Coverage and Net Revenue Analysis Under Scenario D2 (80 percent increase, 25 percent WV E-ZPass discount)**
**West Virginia Parkways, Economic Development and Tourism Authority**
**(Thousands)**

| Fiscal Year | Toll Revenue (1) | Operating Expense (2) | Net Turnpike Revenue | Total Debt Service (3) | Debt Coverage Ratio Test (4) | Renewal and Replacement (R&R) Requirement (2) | Debt and R&R Coverage Ratio Test (5) | Essential Deferred Maintenance and Capital Needs (2) | All Obligations Coverage Ratio Test (6) | Remaining Net Revenue |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | $79,534 | $33,003 | $46,531 | $10,389 | 4.48 | $8,743 | 2.43 | $20,010 | 1.19 | $7,389 |
| 2011 | 81,823 | 33,885 | 47,938 | 10,720 | 4.47 | 8,040 | 2.56 | 21,960 | 1.18 | 7,218 |
| 2012 | 84,947 | 34,797 | 50,150 | 10,401 | 4.82 | 7,837 | 2.75 | 24,036 | 1.19 | 7,876 |
| 2013 | 87,587 | 35,740 | 51,847 | 10,808 | 4.80 | 7,859 | 2.78 | 24,523 | 1.20 | 8,657 |
| 2014 | 89,906 | 36,666 | 53,240 | 10,458 | 5.09 | 8,482 | 2.81 | 24,817 | 1.22 | 9,483 |
| 2015 | 91,632 | 37,726 | 53,906 | 10,717 | 5.03 | 9,156 | 2.71 | 24,562 | 1.21 | 9,471 |
| 2016 | 93,393 | 38,720 | 54,673 | 10,769 | 5.08 | 9,151 | 2.74 | 25,544 | 1.20 | 9,209 |
| 2017 | 95,188 | 39,851 | 55,337 | 10,677 | 5.18 | 9,133 | 2.79 | 26,566 | 1.19 | 8,962 |
| 2018 | 96,925 | 40,971 | 55,954 | 10,719 | 5.22 | 9,099 | 2.82 | 27,924 | 1.17 | 8,213 |
| 2019 | 98,695 | 42,129 | 56,566 | 10,739 | 5.27 | 9,052 | 2.86 | 28,439 | 1.17 | 8,337 |

(1) Revenue is based on an 80 percent increase in passenger car tolls, with a 25 percent West Virginia E-ZPass discount.
(2) Estimates from Consulting Engineer's Report, HNTB for West Virginia Parkways, Economic Development and Tourism Authority, April 2009.
(3) Debt Service from Official Statement dated June 25, 2008.
(4) Debt Coverage Ratio = Net Turnpike Revenue ÷ Total Debt Service.
(5) Debt and R&R Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement).
(6) All Obligations Coverage Ratio = Net Turnpike Revenue ÷ (Total Debt Service + R&R Requirement + Backlog of Essential Needs).